Department of Agriculture
Mysore

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Cost of Cultivation Enquiry.

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S. G. Rangaswami, Village Investigator.
M. V. Subba Rao, do
K. S. Raghavendra, do
Y. Rama Row, do
M. Kesavamurti, do

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S. H. Bennur, L.Ag., Assistant Director of Agriculture, Mysore.
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K. Chayapathy do Davangere.
D. Balakrishna Rao do Hassan.
T. J. Narasoji Rao do Holalkere.
B. R. Gopala Rao do Chitaldrug.
Bapu Shama Rao do Hole-Narsipur.

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M. Krishnamurthy do Shimoga.
C. Pranesa Rao do Tirthahalli.
S. V. Haridas do Arsikere
H. M. Abid Hussein do Shikarpur.
T. C. Thimmaiah do Hiriyur.
S. N. Krishna Murthy, B.A., L.Ag., Tumkur.
K. V. Ramaswamy, Agricultural Inspector, Tumkur.
C. Puttiah, L.Ag., do Kunigal.
K. S. Narasimha Murthy, L.Ag., do Madhugiri.
M. B. Ranganatha Rao, L.Ag. do Tiptur.
K. A. Krishnan, do Kolar.
K. S. Ramachandra Murthy do Chintamani.
C. J. Madhwaraj, L.Ag., do Chikballapur.
K. Basavaraj Urs, L.Ag., do Goribidnur.
K. Rama Iyer, Head Master, S. K. V. D. Patasala, Chikkanahalli.
S. Rangaswamy, Agricultural Inspector, Channapatna Range.
B. Narasimha Murthy Rao do Bangalore.
H. Venkataramiah, L.Ag., do Dodballapur.
D. Sreenivasa Rao, L.Ag., do Magadi.
K. S. Raja Rao, L.Ag., do Mysore.
B. Sreenivasa Iyengar, L.Ag., do Hunsur.
H. Lakshmi Narasimhaiya, L.Ag., do Chamrajnagar Range.
N. C. Madangopal do T.-Narsipur.
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Sheik Ansir do Jeevanrayankatte Farm, Mysore.
Y. R. Narayana Rao, Farm Manager, Coffee Farm, Balehonnur.
G. N. Kale Gowda, Assistant Manager do do
Y. Venkatesiah, Plant Breeding Inspector, Coffee Farm.
K. Narayanachar do Chikmagalur.
M. Seshagiri Rao do Saklespur.
A. K. Narayana Murthy do Tarikere.
M. V. Suryanarayana Rao do Koppa.
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H. G. Hanumiah Setty do Kodihalli Farm.
G. Sundararaja Iyengar do Satanur Farm.
T. Rangaswami, Agricultural Inspector, Mandya
D. Srikantia do Maddur.
H. M. Subbiah, L.Ag., do French Rocks.
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H. Seshagiri Prabhu, L.Ag., Agricultural Inspector, Mandya
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Agricultural School, Ramakrishnapur.

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C. L. Narayana Rao, L.Ag., Assistant Head Master.

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P. Jacob, Agricultural Inspector, Hebbal Farm.
N. Ramanna, B.Ag., Agricultural Inspector, Hebbal Farm.
N. Sreenivasa Murty, Agricultural Inspector, Hebbal Farm.

Babbur Farm.

H. Venkoba Rao, Farm Manager.
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Marthur Farm.

T. Krishnasamy, Farm Manager.
C. Ramaiah, Agricultural Inspector.

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Y. Venkatesiah, Plant Breeding Inspector.

Nagenahalli Paddy Breeding Station.

S. V. Sarma, Junior Assistant Botanist.
A. Krishnaswamy Iyengar, L.Ag., Agricultural Inspector.

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Irwin Canal Farm.

C. V. Ramiah, Superintendent.

Live Stock Section.

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C. Venkatachaliah, Assistant Manager, Cattle Breeding Station, Ajjampur. (On leave)
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Daniel C. Rayalu, L.Ag., Agricultural Inspector in charge, Sheep Work, Ajjampur.
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Mohamed Khan Miyan, Amrit Mahal Daroga, Holalkere Range.
S. P. Seshagiri Rao, G.B.V.C., Amrit Mahal Daroga, Hassan Range.
N. D. Venkatakrishnayya, Amrit Mahal Daroga, Kadur Range.
C. V. Narayana Char, Amrit Mahal Daroga, Tiptur Range.

KAVAL RANGERS.

Mohamed Fazlur Rahiman Sheriff, Hunsur.
S. R. Gundappa, Challakere.
Abdul Latiff, Gubbi.
H. T. Meenakshiya, (Attached to Office.)

CIVIL VETERINARY DEPARTMENT.

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2. C. K. Srinivasa Iyengar, G.B.V.C., Assistant Superintendent, Tumkur Division.
3. B. V. Venkatachar, G.M.V.C., Assistant Superintendent, Bangalore Division.
4. T. V. Manickyaraj, G.B.V.C., do Shimoga Division.
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7. P. U. Nair, G.B.V.C., Assistant Bacteriologist, Serum Institute.
8. K. Ranganatha Rao, G.M.V.C., Assistant Superintendent, Scientific Section,
9. C. Narayaniengar, G.B.V.C., Veterinary Inspector, Davangere.
10. N. R. Srinivasa Iyengar, G.B.V.C., Veterinary Inspector, Serum Institute.
11. S. R. Bapu, G.B.V.C., do Forest Department.
12. G. Subramanya Iyer, G.B.V.C., do Bowringpet.
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14. C. Ranganna, G.B.V.C., do Serum Institute.
15. N. Krishna Murthy, G.B.V.C., do Dodballapur.
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19. T. V. Venkatachallam, G.B.V.C., do Pavagada.
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24. K. N. Kailasam, G.M.V.C., do Mysore.
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43. K. R. Ramachandra Rao, G.B.V.C., do Sagar.
44. K. S. Gopala Rao, G.M.V.C., do Challakere.
45. H. N. Doraswamy Iyengar, G.M.V.C., do Chikballapur.
46. N. Seshagiri Rao, G.M.V.C., do Arkalgud.
47. K. J. Subramanyam, G.M.V.C., do Tumkur.
48. S. G. Kesava Iyengar, G.M.V.C., do Tiptur.
49. S. M. Pantambekar, G.M.V.C., do Belur.
50. Syed Masum, G.M.V.C., do Nagamangala.
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73. Mahomed Ibrahim, L.V.P., do Nelamangala.
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80. K. K. Murthy, G.B.V.C., do Mudigere.
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85. C. Puttaswamy, L.V.P., do Jagalur.
86. K. S. Sri Ram, L.V.P., do Heggaddevankote.
87. M. Abdul Rahim, L.V.P., do Mobile Corps.
88. B. Krishna Singh, L.V.P., do Mobile Corps.
89. S. B. Vasudeva Rao, L.V.P., do Mobile Corps
90. C. T Tirumalaiswamy, B.A., G.M.V.C., do Mobile Corps.
91. D. Ramaiya Setty, L.V.P., do Mobile Corps.
92. P. T. Krishnappa, L.V.P., do Mobile Corps.

SERUM INSTITUTE HEBBAL, BANGALORE.

1. S. D. Achar, G.B.V.C., P.G., (Punjab), Superintendent.
2. P. U. Nayar, G.B.V.C., Assistant Bacteriologist.
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4. C. Ranganna, G.B.V.C., Veterinary Inspector, (Virus Section).
5. T. Chandu, G.B.V.C., Veterinary Inspector, Reserve Depot and Stores Section.
6. V. S. Kuppuswamy Mudaliar, G.M.V.C., Veterinary Inspector, Serum and Experimental Section.
7. R. M. Purushotham, G.B.V.C., Veterinary Inspector, Laboratory Section.
8. G. N. Srikantiah, G.M.V.C., Veterinary Inspector, Virus and Experimental Section.

MYSORE AGRICULTURAL CALENDAR, 1934.

THE MYSORE AGRICULTURAL DEPARTMENT.

The object of the Agricultural Calendar is to present to the Agriculturists of this State some aspects of the work of the Mysore Agricultural Department. Most raiyats in this State are familiar with the work of the Department through results and demonstrations of its District Staff of Agricultural Inspectors and Fieldmen. Unfortunately these are still too few in number to reach more than a fraction of the Agriculturists of the State.

The Agricultural articles in this Calendar cover only a very small part of the department's activities. Among the most important of these which are not dealt with at all are the breeding of new varieties of ragi, paddy, cotton, groundnut and sugar-cane. Many of these have become widely established in the State and are very materially increasing the produce of the raiyats who grow them. In connection with this work one of the most important features is the establishment of seed farms for the multiplication of seed of improved varieties for distribution. These seed farms are owned by private Agriculturists who are co-operating with the Department. There have been during the past growing season 129 ragi seed farms in operation mostly growing H22 ragi and it is anticipated that these will produce about 700 pallas of pure seed ragi for the next growing season or sufficient for the sowing of about 7,000 acres. This is of course only a small fraction of the seed of improved varieties which is being distributed, for much of it is now being given out independently of these farms.

One of the most striking increases of a new variety of crop has been on the Irwin Canal area where 3,000 acres of H. M. 320 Sugar-cane are being grown for supply to our new sugar factory. The area under this variety is expected at least to double during the planting season of the present year in this one area while it is spreading rapidly on other areas as well. It has proved itself an exceptionally rich and hardy cane highly suited to cultivation in most parts of Mysore.

One branch of the Agricultural Department's work which is becoming increasingly important is the Live Stock Branch. It is gratifying to know that the scheme of supplying Breeding Bulls to Village Panchayets for the improvement of our draught cattle is becoming increasingly popular. Very much more must be done in this direction however before we can possibly note any marked improvement. I have estimated that there is really a need for the supply of about 4,000 good breeding bulls per annum to meet the needs of the State. Even taking into account the fairly large number of breeding bulls bred by raiyats themselves and distributed throughout the villages there still must be a requirement of at least 2,000 per annum which is not now being met. The Department's herd of Amrit Mahal Cattle is being improved by

Holidays	English Dates	Days of the week	Dates: Chandramana	Dates: Sowramana	Tithies in Ghaliges and Vighaliges			Nakshatras in Ghaliges and Vighaliges		
										SRIMUKH
										PUSH
G	1	Monday ...	1	18	Padya	...	52 33	Aridra	...	2 4
	2	Tuesday ...	2	19	Bidige	...	57 47	Punarvasu	...	9 1
	3	Wednesday	3	20	Tadige	...	60 0	Pushya	...	15 1
	4	Thursday ...	4	21	Chouti	...	60 0	Aslesha	...	20 4
	5	Friday ...	4	22	Chouti	...	5 26	Makha	...	25
	6	Saturday ...	5	23	Panchami	...	7 40	Pubba	...	28 1
	7	Sunday ...	6	24	Shashti	...	6 38	Uttara	...	30
	8	Monday ...	7	25	Saptami	...	8 45	Hasta	...	30 4
	9	Tuesday ...	8	26	Ashtami	...	6 21	Chitta	...	30 1
	10	Wednesday	9	27	Navami	...	4 0	Swati	...	28 4
	11	Thursday ...	10-11	28	Dasami Ekadasi	... ...	0 16 55 55	Visakha	...	26 1
	12	Friday ...	12	29	Dwadashi	...	50 58	Anuradha	...	23 4
	13	Saturday ...	13	30	Trayodashi	...	45 13	Jeshta	...	19 1
			Ma	kara						
	14	Sunday ...	14	1	Chaturdasi	...	39 6	Moola	...	15 1
	15	Monday ...	30	2	● Amavasya	...	33 17	Poorvashadha	...	11 4
										MAGH
	16	Tuesday ...	1	3	Padya	...	27 31	Uttarashadha	...	6 56
M	17	Wednesday	2	4	Bidige	...	21 9	Sravana Dhanishta	... ...	3 8 56 20
	18	Thursday ...	3	5	Tadige	...	17 50	Satabhisha	...	56 50
	19	Friday ...	4	6	Chouti	...	13 12	Poorvabhadra	...	54 1
G	20	Saturday ...	5	7	Panchami	...	10 13	Uttarabhadra	...	54 2
	21	Sunday ...	6	8	Shashti	...	7 56	Revati	...	54 21
	22	Monday ...	7	9	Saptami	...	7 2	Asvini	...	55 51
	23	Tuesday ...	8	10	Ashtami	...	7 2	Bharani	...	58 31
H	24	Wednesday	9	11	Navami	...	9 0	Krithika	...	60 0
	25	Thursday ...	10	12	Dasami	...	11 55	Krithika	...	3 12
	26	Friday ...	11	13	Ekadasi	...	15 54	Rohini	...	8 15
	27	Saturday ...	12	14	Dwadashi	...	20 42	Mrigasira	...	14 12
	28	Sunday ...	13	15	Trayodasi	...	26 4	Aridra	...	20 36
	29	Monday ...	14	16	Chaturdasi	...	31 32	Punarvasu	...	27 10
	30	Tuesday ...	15	17	○ Pournima	...	36 36	Pushya	...	33 29
										MAGHA
	31	Wednesday	1	18	Padya	...	41 6	Aslesha	...	38 58

Yogas	Feasts, Festivals, Government Holidays and Rainfall according to Nakshatras	Dates of Cattle Fairs, Cattle Shows, Agricultural Exhibitions and other useful notes
AR.		Sun rise 6-44.
AHULA.		
ahendra ...	Poorvashadha rain, 2nd pada. Christmas leave. (New Year's Day.)	Cattle Fair at Hassan Town.
idhruti ...	Mugur Car Festival.	
shkamba ...	Poorvashada rain, 3rd pada.	
reeti ...	Sankashta Chaturthi.	
yushman ...		
wbhagyam ...	Thoranahalli Chappalammana Jatra, Malur Taluk.	
obana ...	Poorvashada rain, 4th pada.	
iganda ...		
karma ...		
hriti ...	Kudaravellam. Uttarashada rain, 1st pada.	
ola ...	Smartha Ekadashi.	
anda ...	Vaishnava Ekadashi.	
ridhi ...	Uttarashadha rain, 2nd pada Bogi Festival.	
yaghata ...	Uttarayana Punyakala. Bodhayana Amavasya.	
arsha ...	Sarvathra Amavasya Chunchanakatte Ramaswamy Car Festival.	Chunchanakatte, Yedatore Taluk. Cattle Fair at Chunchankatte.
UDDHA.		
ajra ...		
iddhi ...	Uttarashadha rain, 3rd pada	Khutba-e-Ramzon.
yatipata ...	Kundachaturthi. Mowna Gowri Vratham.	
arigha ...		
arigha ...	Uttarabhadra rain, 4th pada Kumara Shashti.	P. Sa.
iddhi ...	Ratha Saptami.	Hemagiri Rangaswamy Car Festival.
huba ...	Sravana rain, 1st pada.	
ukla ...	Madhva Navami.	
rahma ..	Ekadashi Thithi.	
Iahendra ..	Sarvathra Ekadasi. Sravana rain, 2nd pada.	Mallikarjunaswamy Car Festival, Mudukatore, T.-Narsipur Taluk. Cattle Fair at Mudukatore for 15 days.
aidhriti ...		
ishkamba ...	Ranganathaswami Car Festival.	Sivasamudram.
reeti ...	Someswaraswamy Car Festival.	Magadi. Gangadharaswamy Car Festival, Gavipur, Bangalore
yushman ...	Lunar Eclipse. Sravana rain, 3rd pada.	1 Vokkaleri, Kolar Taluk.
AHULA.		2 Chennagiri Town.
owbhagya ...		3 Harihar Town.
		4 Bettadaur, Hunsur Tpk.

JANUARY 1934.

MONTHLY NOTES.

Where tanks have received a good supply of water in the rains of th north-east monsoon and on lands under well-cultivation, the fields will soon b sown with *vaisakhi* or summer paddy. Transplant your paddy in preference t sowing it broadcast. Considerable saving in seed can be effected especially the seedlings are planted in two's and three's rather than in bunches of severa seedlings. The water in the tanks, which in the coming dry weather is liable t much loss by evaporation, can be used economically by this method. Whe water has to be raised from great depths, such saving is an important considera tion. Transplanting will moreover give a better yield than broadcasting. Specia manures for paddy are stocked in the Inspectors' depots; these are worth a tria

Sow *bili jola* on black cotton soil, in tank beds with no water in them, an under tanks with limited supplies of water, so as to have good fodder for cattl during the dry months.

Dry land fields should be left in a loosely stirred condition from now on wards through the hot weather till the beginning of the rains. Wherever th soil is soft enough to plough, it should be ploughed. If too hard for the plough, th disc-harrow should be used for the purpose. *Vide* notes under December fo details. Planting sugar-cane will commence from this month. Place trash heap in the field and capture and destroy the moths as recommended in the circula of the Department on this pest, to be had free on request.

Mango flowers will flower about the middle of this month. Look for the hoppers on them and spray them with fishoil soap at the rate of 1 lb. for 10 gallons of water.

election as rapidly as possible and I would impress upon the Village Panchayets the great importance of their making use of the facilities for the supply of breeding bulls to the full extent possible.

The subjects dealt with in this Calendar have not been confined to the strictly Agricultural. We have to thank the Registrar of Co-operative Societies and the Superintendent, of Sericulture for providing us information of interest and importance to the Agriculturists of the State. Finally the sister Civil Veterinary Department has furnished us with two papers which are of agricultural interest.

An additional feature which should be of value is a special article giving information as to what raiyats can see on our various Experimental Farms and at what times of the year these Farms can be visited with the greatest profit.

VILLAGE PANCHAYETS AND THE IMPROVEMENT OF CATTLE.

There can be no two opinions as to the value of live-stock to the agriculturist in an agricultural country like Mysore. Any trouble taken to improve the live-stock could never therefore be considered as superfluous. It is not possible for any one unit such as Government to take all action required in this process in all the villages of the State at the same time, and if sufficient and efficient co-operation from each village cannot be had, no headway in this direction will be possible.

The two main causes for the degeneration of cattle are (i) having very many scrub bulls in every village, and (ii) not having a good breeding bull in each village. It is very necessary to remedy these defects. The primary duties of these Panchayets should be to prevent the large number of scrub bulls of the village from serving the cows and causing deterioration of the breed. It is imperative therefore that all the scrub bull calves of the village should be castrated when they are very young, say one year old. It is not possible for the only Veterinary Inspector of the Taluk to attend to this work in all the villages of his jurisdiction. More men are required for this purpose involving extra cost. It is out of the question for the Government to meet such cost in these days of financial stringency. Hence the Village Panchayets can remedy the first defect by adopting the following scheme as the Village Panchayets are commanding their own resources and expenditure.

A sum equal to about 3 to 5 per cent of the revenue of every Village Panchayet is sanctioned by the Panchayet for improvement of cattle mainly for the weeding of scrub bulls and paid to the Amildar of the Taluk to the credit of a joint fund. According to the collection of funds, a trained man on Rs. 15 to Rs. 20 per mensem is appointed for each or more Hoblies, whose business should be to move out from village to village daily and to castrate all the scrub bulls in those villages on a definite programme of tour fixed by the Amildar in consultation with the Veterinary Inspector of the area. The Amildar and the Veterinary Inspector will be the checking officers of the work turned out by the man so appointed.

Holidays	English Dates	Days of the week	Dates		Tithies in Ghaliges and Vighaliges		Nakshatras in Ghaliges and Vighaliges	
			Chandramana	Sowramana				
	1	Thursday ...	2	19	Bidige	... 44 26	Makha	... 43
	2	Friday ...	3	20	Tadige	... 46 35	Pubba	... 47
	3	Saturday ...	4	21	Chouti	... 47 30	Uttara	... 49
	4	Sunday ...	5	22	Panchami	... 44 26	Hastha	... 50
	5	Monday ...	6	23	Shashti	... 45 18	Chitta	... 50
	6	Tuesday ...	7	24	Saptami	... 42 26	Swathi	... 49
	7	Wednesday..	8	25	Ashtami	... 38 25	Vishakha	... 44
	8	Thursday ...	9	26	Navami	... 30 49	Anuradha	... 43
	9	Friday ...	10	27	Dasami	... 28 31	Jeshta	... 39
	10	Saturday ...	11	28	Ekadasi	... 22 50	Moola	... 35
	11	Sunday ...	12	29	Dwadasi	... 16 54	Poorvashadha	... 31
			Kumbha					
G	12	Monday ...	13	1	Trayodasi	... 10 58	Uttarashadha	... 27
	13	Tuesday ...	14-30	2	Chaturdasi ● Amavasya	... 5 11 ... 54 32	Sravana	.. 23
							PHALGU	
C	14	Wednesday..	1	3	Padya	... 54 40	Dhanishta	... 20
	15	Thursday ...	2	4	Bidige	... 50 37	Satabhisha	... 17
	16	Friday ...	3	5	Tadige	... 47 27	Poorvabhadra	... 15
G	17	Saturday ...	4	6	Chouti	... 45 25	Uttarabhadra	... 14
	18	Sunday ...	5	7	Panchami	... 44 26	Revati	... 14
	19	Monday ...	6	8	Shashti	... 44 52	Asvini	... 15
	20	Tuesday ...	7	9	Saptami	... 46 26	Bharani	... 18
	21	Wednesday ..	8	10	Ashtami	... 49 28	Krithika	... 21
	22	Thursday ...	9	11	Navami	... 53 31	Rohini	... 26
	23	Friday ...	10	12	Dasami	... 60 0	Mrigasira	... 32
	24	Saturday ...	11	13	Ekadasi	... 60 0	Aridra	... 38
	25	Sunday ...	11	14	Ekadasi	.. 4 6	Punarvasu	... 45
	26	Monday ...	12	15	Dwadashi	... 9 22	Pushya	... 51
	27	Tuesday ...	13	16	Trayodasi	... 13 53	Aslesha	... 57
H	28	Wednesday..	14	17	Chaturdasi	... 18 33	Makha	... 60

Yogas	Feasts, Festivals, Government Holidays and Rainfall according to Nakshatras	Dates of Cattle Fairs, Cattle Shows, Agricultural Exhibitions and other useful notes
		Sun Rise 6-48
Sowbhagyam ...	Narasimhaswamy Car Festival.	Akkihebbal.
Sobhanam ...	Narasimhaswamy Car Festival.	Sibi-Sravana rain 4th pada.
Atiganda ...		
Sukarma ...	Sankashta Chaturthi	
Dhriti ...		Fair at Uttanahalli.
Shoola ...	Dhanishta rain, 1st pada.	
Ganda ...		
Vriddhi ...	Tisroshtaka.	
Dhruva ...	Dhanishta rain, 2nd pada.	
Vyaghata ...		
Harsha ...	Sarvathra Ekadasi.	
Vajra ...		
Siddhi ...	Dhanishta rain, 3rd pada Maha Sivaratri. Sri Bhoga Nandeswaraswamy Car festival, Nandi, Chikballapur Taluk, Avani, Mulbagal taluk.	Kumbha Sankramana.
Variyan ...	Sarvathra Amavasya.	
SUDDHA.		
Varigha ...	Kalanathaswamy Car Festival.	Aragha. Ash Wednesday.
Siva ...	Dhanishta rain, 4th pada.	
Siddha ...	Teppotsavam at Srirangam.	
Siddha ...		P. Sa.
Shubha ...	Satabhisha rain, 1st pada.	
Sukla ...	Mysore Marishidi.	
Brahma ...		
Mahendra ...		
Vaidruti ...	Satabhisha rain, 2nd pada.	
Vishkambha ...	Kodandaramaswami Car Festival.	Kethanahalli. Cattle fair at Gubbi.
Preeti ...		
Ayushman ...	Sarvathra Ekadasi. Satabhisha rain, 3rd pada.	
Sowbhagya ...		
Shobana ...	Krishnaswami Car Festival.	Tondanur.
Atiganda ...	Kamadahana. Holi Feast. Satabhisha rain, 4th pada	

FEBRUARY 1934.

MONTHLY NOTES.

In making preparations for threshing, it is well to remember that this slow and tedious work can be done much more quickly and with less trouble and worry by adopting better methods than those commonly employed. Firstly, a stone threshing roller $2\frac{1}{2}'$ long by $2'$ high, of the kind now coming into use in many parts of the State, is a very good appliance and is well within the means of the ordinary raiyat. It does the work quicker and with less labour, and can be used for threshing ragi, jola, avare, togari or hurali. Those wishing to plant the new varieties of sugar-cane should plant them this month, if not earlier. *Vide* notes under November.

Bloodless Castrators are manufactured at the Government Central Industrial Workshop and sold at Rs. 40 each.

Government have opened a Castration Demonstration Class at Bangalore, which would provide the trained men required.

When the above primary duty is over, the Village Panchayets should consider the advisability of purchasing and maintaining a good breeding bull for each village or group of villages constituting the Panchayet to ensure a good progeny. The concessions granted by the Government regarding the sale of breeding bulls from the Cattle Breeding Station at Ajjampur are very timely and useful in the matter.

I hope that this scheme will commend itself to every Panchayet and they will, by taking very early steps to improve the cattle in their area, improve the economic wealth of the raiyat.

CO-OPERATIVE MAINTENANCE AND CARE OF BREEDING BULL AT HOLALUR VILLAGE PANCHAYET, SHIMOGA TALUK.

An Amrutmahal breeding bull numbered 28 on the right thigh is owned by the said Village Panchayet for giving service to the Village cows. It is very docile and is very much liked consequently by the Village as a whole. Already about 50 calves are born to it and all of them take after the said bull. It is estimated to have produced an extra sum of Rs. 1,000 to the Village Panchayet already, as a result. People are therefore contemplating to procure another bull of the same sort in the nearest future. They have been taking care to castrate undesirable scrub animals by the usual method of mulling. The bull is allowed, by common consent to graze wherever it likes and is taken care of and tethered during night by the Village cow-boy, Rudranna, who is allowed to have as remuneration, all the cowdung dropped at the common place called Turumande, near the Village where all the cattle are gathered before they are taken to the hill side for common grazing. He is getting between 25 to 30 cart loads of cowdung annually. He gets nothing else. It is hoped that the Village Panchyets who already own breeding bulls and the prospective Village Panchayets would make use of this information if necessary.

THE ACRICULTURISTS AND THE CO-OPERATIVE MOVEMENT.

That aspect of the Co-operative movement which aims to provide the raiyat with his much needed capital is fairly familiar to most of them.

Other benefits which these institutions offer to the agriculturist are of even greater importance and value. What the raiyat needs even more than facile credit are the means to repay his debts, *i.e.*, an augmentation in his income, which in other words means reduction in the cost of production, increase of production and securing a better money return

Holidays	English Dates	Days of the week	Dates: Chandramana	Dates: Sowramana	Tithies in Ghaliges and Vighaliges			Nakshatras in Ghaliges and Vighaliges		
	1	Thursday ...	15	18	○Pournami	...	21 24	Makha	...	2
								PHALGUNA		
	2	Friday ...	1	19	Padya	...	23 24	Pubba	...	6
	3	Saturday ...	2	20	Bidige	...	24 22	Uttara	...	8 3
	4	Sunday ...	3	21	Tadige	...	23 57	Hastha	...	9 4
	5	Monday ...	4	22	Chouti	...	22 18	Chitta	...	9 4
	6	Tuesday ...	5	23	Panchami	...	18 35	Swathi	...	8 3
	7	Wednesday	6	24	Shashti	...	14 58	Vishakha	...	6 4
	8	Thursday ...	7	25	Saptami	...	10 15	Anuradha	...	3 5
	9	Friday ...	8-9	26	Ashtami Navami	... ...	4 47 54 32	Jeshta Moola	... ...	0 2 58 1
	10	Saturday ...	10	27	Dasami	...	53 18	Poorvashadha	...	52 2
	11	Sunday ...	11	28	Ekadasi	...	47 13	Uttarashadha		48 7
	12	Monday ...	12	29	Dwadasi	...	41 23	Sravana	...	44 6
	13	Tuesday ...	13	30 Meena	Trayodasi	...	35 58	Dhanishta	...	40 31
	14	Wednesday	14	1	Chaturdasi	...	31 8	Satabhisha	...	37 31
	15	Thursday ...	30	2	●Amavasya	...	27 4	Poorvabhadra	...	35 1
							BHAVA YEAR.			CHAITRA
G	16	Friday ...	1	3	Padya	...	23 38	Uttarabhadra	...	33 5
	17	Saturday ...	2	4	Bidige	...	22 22	Revati	...	34 3
	18	Sunday ...	3	5	Tadige	...	22 0	Asvini	...	36 2
	19	Monday ...	4	6	Chouti	...	22 57	Bharani	...	38 4
	20	Tuesday ...	5	7	Panchami	...	24 49	Krithika	...	42 2
	21	Wednesday...	6	8	Shashti	...	27 57	Rohini	...	47 4
	22	Thursday ...	7	9	Saptami	...	31 40	Mrigasira	...	52 4
	23	Friday ...	8	10	Ashtami	...	36 3	Aridra	...	58 1
G	24	Saturday ...	9	11	Navami	...	39 50	Punarvasu	...	60 0
	25	Sunday ...	10	12	Dasami	...	45 27	Punarvasu	...	4 2
M	26	Monday ...	11	13	Ekadasi	...	49 55	Pushya	...	10 2
	27	Tuesday ...	12	14	Dwadasi	...	53 51	Aslesha	...	15 5
	28	Wednesday...	13	15	Trayodasi	...	57 1	Makha	...	20 5
	29	Thursday ...	14	16	Chaturdasi	...	59 11	Pubba	...	25 2
G	30	Friday ...	15	17	○Pournami	...	59 48	Uttara	...	28 1
								CHAITRA		
	31	Saturday ...	1	18	Padya	...	59 59	Hastha	...	30 9

Yogas	Feasts, Festivals, Government Holidays and Rainfall according to Nakshatras	Dates of Cattle Fairs, Cattle Shows Agricultural Exhibitions and other useful notes
		Sun rise 6-39
Sukarma ..	(1) Keshavaswamy Car Festival.	(1) A. Prasanna Nanjundeswaraswamy Car Festival.
BAHULA.		
Dhriti ...	Srinivasaswami Car Festival, at Karighatta.	B. Venkataramanaswamy Car Festival, Nonebur.
		C. Gadhadharaswamy Car Festival, Gavirayabetta.
Shoola ...	Mukambara Festival, Kollur	D. Narasimhaswamy Car Festival, Devarayanadurga.
Ganda ...	Poorvabhadra rain, 1st pada	Chamundeswari Car Festival, Harohalli. Cattle fair at Harohalli, Kankanhalli taluk.
Vriddhi ...	Vyasarayaswamy Punya dina.	
Dhruva ...	Mahabaleswaraswami Car Festl.	Chamundi hill, Mysore.
Harsha ...	Maththi Thaleswaraswamy Car Festival. Poorvabhadra rain, 2nd pada.	
Vajra ...		
Siddha ...	Car Festival at Kollur.	
Vyatipata ...	Poorvabhadra rain 3rd pada	
Variyan ...	Sarvathra Ekadasi.	
Varigha ..	Sravana Dwadasi.	
Siva ...	Himavatgopalaswamy Car Festival.	
Sadhya ...	Poorvabhadra rain, 4th pada.	Kargatal Adehabba.
Shubha ...	Sarvathra Amavasya.	
SUDDHA.		
Sukla ...	Chandra Samvatsara Arogya Pratipat.	Chandramana Yugadi.
Brahma ...	Uttarabhadra rain, 1st pada	
Mahendra ...		
Vaidhriti ...	Varaganapathi Vratham.	
Vishkambha ...	Uttarabhadra rain, 2nd pada	
Preeti ...	Lakshmi Panchami.	
Ayushman ...		
Sowbaghya ...		
Sobhana ...	Uttarabhadra rain 3rd Pada	P. Sa. & Sri Rama Navami
Atiganda ...	Vairamudi at Melkote.	Venkataramanaswamy Car Festival, Chikka Tirupati, Malur Taluk.
Sukarma ...	Sarvathra Ekadasi.	Bakrid.
Dhriti ...	Uttarabhadra rain, 4th pada	
Shoola ...	Vamana Dwadasi.	
Ganda ...	Fair at Nanjangud.	
Vriddhi ...	Revati rain, 1st pada.	Venkataramanaswamy Car Festival, Cattle fair at Doddakurugodu Goribidanur taluk. Good Friday.
	Ranganathaswamy Car Festival.	Magadi.
BAHULA.		
Dhruva ...	Gunja Narasimhaswamy Car Festival.	T.-Narasipur.

MARCH 1934.

MONTHLY NOTES.

The month for cane milling. Note that, with the same amount of cane, a bigger money return can be obtained by the use of better mills which extract more juice, and by better methods of boiling jaggery whereby a firm and light coloured jaggery fetching a higher price can be got. Use the Nahan or the Madurai bullock mill, or, if possible, an engine-driven mill for milling. Use red litmus paper to judge liming and a good skimming ladle to remove scum thoroughly.

On dry land fields, the bulk of the local variety of cotton will be picked. It will pay to pick cotton clean and also to pick good cotton separately from worm-eaten, stained or otherwise dirty cotton.

On garden lands, *i.e.*, under well-cultivation, minor vegetable crops like beans, cucumber, maize, etc., can be now put in, which will be removed in time to prepare and get the land ready for the main rainy season crop of irrigated ragi, chillies, or potatoes.

for the production. These aims can well be achieved through Co-operative Societies. By clubbing their needs in seeds, manure ploughs, etc., and buying them in bulk; by joint ownership of wells, pumps and costly agricultural machinery; and by collective farming if possible; the cost of production can be greatly reduced. By the use of modern appliances, scientific manures and selected seeds, which co-operative societies could bring within the means of every individual raiyat, it would be possible to increase production.

More important than these, it is the co-operative marketing of the produce that will very materially add to the present income of the raiyat now selling them through a host of middlemen all fattening on his labours.

It is not possible to describe here at any length the various forms of societies that can be organised for the above purposes or the method of their working, but it is trusted that a sufficient indication has been made to show that co-operative societies can be a vital part of the agricultural industry and can be the means of vastly improving the present economic position of the agriculturist. It is, therefore, hoped that every raiyat in the State will take a real interest in the formation of co-operative societies and their proper functioning.

APPLICATION OF AMMONIUM SULPHATE TO SUGAR-CANE IN THE JAVA METHOD.

In the use of soluble artificial manures to any crop, one important source of loss of the manure that one has to guard against is its displacement during irrigation. It is particularly so in the case of a highly soluble nitrogenous manure like Ammonium Sulphate.

Until recently, the usual method of applying ammonium sulphate to sugar-cane was to distribute a certain quantity of this manure for a certain length of furrow as a top dressing and allow the irrigation water to gently flow in the furrow. Loss of a certain amount of manure by displacement was inevitable in this method.

The new method of using sulphate of ammonia for cane was introduced in February last on the Irwin Canal Farm, other Factory farms and several raiyats' fields as well. This consists of making a hole about two inches wide and four inches deep a little away from each stool of cane and dropping a definite quantity of sulphate of ammonia in each of these holes. The quantity of manure required is measured out in conical shaped tin spoons having long handles and dropped into each of these holes. The dose of manure being fixed, it is quite easy to calculate how much manure is to be dropped into each of these holes. Usually 8000 setts of cane are planted per acre. It would, therefore, be accurate, for all practical purposes, to start the manuring on the basis of 8,000 stools of cane per acre. If the dose of ammonium sulphate is three cwts. per acre, the spoons may be made to hold $1\frac{1}{2}$ tolas of ammonium sulphate and this would work out to about three cwts. ammonium sulphate per acre making sufficient margin for errors. Holes at each stool can be made with bamboo sticks of $3\frac{1}{2}$ feet height to which pointed metal ends are fixed.

Holidays	English Dates	Days of the week	Dates: Chandramana	Dates: Sowramana	Tithies in Ghaliges and Vighaliges				Nakshatras in Ghaliges and Vighaliges		
	1	Sunday ...	2	19	Bidige	...	58	27	Chitta	...	30 54
	2	Monday ...	3	20	Tadige	...	55	40	Swathi	...	30 26
	3	Tuesday ...	4	21	Chouti	...	57	44	Visakha	...	28 48
	4	Wednesday	5	22	Panchami	...	46	49	Anuradha	...	26 8
	5	Thursday ...	6	23	Shashti	...	41	8	Jeshta	...	22 33
	6	Friday ...	7	24	Saptami	...	34	51	Moola	...	18 31
	7	Saturday ...	8	25	Ashtami	...	28	30	Poorvashada	...	14 3
	8	Sunday ...	9	26	Navami	...	22	3	Utharashadha	...	9 29
	9	Monday ...	10	27	Dasami	...	15	57	Sravana	...	5 7
	10	Tuesday ..	11	28	Ekadasi	...	10	9	Dhanishta Satabisha	... ...	1 22 56 0
	11	Wednesday	12	29	Dwadasi	...	5	12	Poorvabhadra	...	55 20
	12	Thursday ...	13-14	30	Trayodasi Chaturdasi	... ...	1 54	0 9	Uttrabhadra	...	56 46
			Mesha								
H	13	Friday ...	30	1	● Amavasya	...	56	6	Revati	...	54 7
									ADHIKA VAISAKHA		
	14	Saturday ...	1	2	Padya	...	55	50	Asvini	...	55 19
	15	Sunday ...	2	3	Bidige	...	56	38	Bharani	...	57 42
	16	Monday ...	3	4	Tadige	...	58	34	Krithika	...	60 0
	17	Tuesday ...	4	5	Chouti	...	60	0	Krithika	...	1 28
	18	Wednesday	4	6	Chouti	...	1	44	Rohini	...	5 57
	19	Thursday ...	5	7	Panchami	...	5	27	Mrigasira	...	11 11
H	20	Friday ...	6	8	Shashti	...	9	45	Aridra	...	16 56
G	21	Saturday ...	7	9	Saptami	...	14	19	Punarvasu	...	22 46
	22	Sunday ...	8	10	Ashtami	...	18	54	Pushya	...	28 56
M	23	Monday ...	9	11	Navami	...	23	14	Aslesha	...	34 39
M	24	Tuesday ...	10	12	Dasami	...	27	2	Makha	...	39 49
G	25	Wednesday	11	13	Ekadasi	...	30	4	Pubba	...	44 13
	26	Thursday ..	12	14	Dwadasi	...	32	6	Uttara	...	47 37
	27	Friday ...	13	15	Trayodasi	...	33	0	Hastha	...	49 54
	28	Saturday ...	14	16	Chaturdasi	...	32	41	Chitta	...	50 57
	29	Sunday ..	15	17	○ Pournami	...	31	6	Swathi	...	50 45
									ADHIKA VAISAKHA		
	30	Monday ...	1	18	Padya	...	28	18	Vishaka	...	49 22

Yogas	Feasts, Festivals, Government Holidays and Rainfall according to Nakshatras	Dates of Cattle Fairs, Cattle Shows, Agricultural Exhibitions and other useful notes
		Sun Rise 6-21
Vyaghata ...	Mahabishekam at Melkote.	
Harsha ...	Lakshmi Kanthaswamy Car Festival.	Kalatae.
Vajra ...	Pavitrotsavam at Kanchi Revati rain 2nd Pada.	
Siddhi ...		
Vyathipatha ...		
Variyan ...	Revati rain 3rd pada ...	
Parigha ..		
Siva Siddha ...		
Sadhya ...	Revati rain 4th pada ...	
Subha ...		
Sukla ...		
Brahma Mahendra ...	Asvini rain 1st pada ...	Tamil New Years' day.
Vaidhriti ...		
SUDDHA.		
Vishkamba ...		
Preeti ...	Asvini rain 2nd pada ...	
Ayushman ...		
Sowbhaghyam ...		
Sobana ...	Sri Bhasyakar Car Festival	
Atiganda ..	Sri Bhashyakar Tirunakshatra.	Sri Ramanujacharyara Tirunakshatram.
Sukarma ...	Asvini rain 3rd pada ...	
Dhriti ...		P. Sa.
Shoola ...	Asvini rain 4th pada ...	Moharram Holidays.
Ganda ...		
Vriddhi ...		
Dhruva ...	Janardhanaswamy Car Festival at Mandya.	Last Day of Moharram.
Vyagatha ...	Lakshminarayanaswamy Car Festival, Tondanur	
Harsha ...	Aprameyaswami Car Festival, Malur.. Barani rain 1st pada ...	
Vajra ...	Biligiri Rangaswamy Car Festival.	
Siddha ...		
AHULA.		
Vyatipata ...	Barani rain 2nd pada ...	

APRIL 1934.

MONTHLY NOTES.

The *pattapatti* variety of sugar-cane is a very superior local cane both i the yield of cane per acre and in the quantity of sugar present in the juic But new varieties which are more vigorous and better yielding are now availabl These are H. M. 544; H. M. 320; H. M. 553; Babbur Striped (H. M. 54 Striped); H. M. 602 and J. 33-A. These should be planted from November t February, as they are likely to arrow about the month of November and cane planted after February will not give a large tonnage owing to the cessation c growth after arrowing. Applications for seed setts should be made to the Deput and Assistant Directors who will arrange to procure them from the centre nearest to the applicants.

Sugar-cane raiyats should lay in also a good supply of oil-cake for bein used as manure for the sugar-cane. About 90 maunds will be required per acre but even double this quantity may be used with advantage, for sugar-cane res ponds well to this manure. One-third of the quantity should be well powdered and applied at the time of planting, and the remaining two parts should be applied as top dressing later on during the growth of the cane. Sulphate o ammonia is a highly concentrated manure; it will stimulate growth quickly and encourage tillering. Use it at 2 cwts., per acre within three months from planting to supplement the cake manuring. A dose of 300 lbs. of superphosphate per acre at planting time is highly beneficial to the young cane.

On dry lands when carting manure, cart also the soil from the beds of tanks which are usually dry at this time of the year, for the silt will both improve and enrich the soil.

The cost of applying the manure works to Re. 1-1-6 per acre according to this method. Two men to make holes, four boys or girls to drop the manure, and one boy to carry the manure will be required for the manuring of one acre of cane.

At the time of planting cane this method of manuring cannot be adopted. The initial dose of fertilisers has to be applied as a top dressing. The second and the subsequent applications may be done in the Java method. The crop must be at least seven or eight weeks at the time the second application is made. The holes should be made 6″ to 8″ away from the cane shoot as, otherwise, the soil round about the shoots becomes highly concentrated with ammonium sulphate which kills the shoots. The first irrigation after the application of the manure in this method wets the ammonium sulphate and dissolves a portion of it also, and when the moisture dries up, the manure becomes a hard mass and assumes the shape of the hole into which it is at first dropped. This mass goes on gradually dissolving and diffusing into the soil. The heavier the irrigation and the longer the water stands in the field, the quicker the manure dissolves. In order not to have any adverse effect of the manure on the crop for the first fortnight after the application of the manure, more frequent irrigation should be given so as to keep the soil just moist without allowing it to dry up. The effect of deficiency of water at this stage can be observed in the foliage turning yellow due to ammonium sulphate dissolving in water leaving the manure in a highly concentrated form arround each stool. If moderate irrigation is given, the foliage changes to dark green after 12-15 days when too copious or frequent irrigations should not be resorted to, as otherwise the effect of the manure is partially lost in irrigation water. If moderate irrigation is resorted to, the foliage remains dark green until the cane crop is about to mature and adds considerably to the tonnage.

The ratoon cane crop on the Irwin Canal Farm in several blocks is very good and the crop remained absolutely green until it was nearing 10 months. The average yield from a block of 40 acres may be expected to be at least 40 tons of cane per acre and 30 per cent of the canes in the field weigh between 4-5 pounds individually. One of the chief reasons for this uniform big yield on these blocks and a more uniform stand than the previous year's in the other blocks where the crops were poor last year, may be said to be due to the application of ammonium sulphate in the Java method.

EFFECT OF MULCHING ON YOUNG COFFEE.

About three years ago the cultivation of Robusta coffee was started on the Marthur Farm, Shimoga District on a small experimental scale with the object of eventually introducing the cultivation of coffee in the forest areas of this district if the experiment on the Farm should be successful. In addition to planting, the coffee under the natural shade of the jungle trees in the usual way a considerable area had to be planted out in the open without any shade at all. This latter course was adopted in order to save time, as the preliminary raising of shade trees

Holidays	English Dates	Days of the week	Dates		Thithies in Ghaliges and Vighaliges			Nakshatras in Ghaliges and Vighaliges		
			Chandramana	Sowramana						
	1	Tuesday ...	2	19	Bidige	... 24	20	Anuradha	... 46	
	2	Wednesday	3	20	Tadige	... 19	29	Jeshta	... 43	
	3	Thursday ...	4	21	Chouti	... 13	50	Moola	... 39	
	4	Friday ...	5	22	Panchami	... 7	38	Poorvashadha	... 35	
	5	Saturday ...	6--7	23	Shashti	... 1	19	Uttarashadha	... 30	
					Saptami	... 53	23			
	6	Sunday ...	8	24	Ashtami	... 48	10	Sravana	... 27	
	7	Monday ...	9	25	Navami	... 42	25	Dhanishta	... 21	
	8	Tuesday ...	10	26	Dasami	... 37	24	Satabhisha	... 18	
	9	Wednesday	11	27	Ekadasi	... 33	19	Poorvabhadra	... 16	
	10	Thursday ...	12	28	Dwadasi	... 30	30	Uttarabhadra	... 14	
	11	Friday ...	13	29	Trayodasi	... 28	31	Revati	... 14	
	12	Saturday ...	14	30	Chaturdasi	... 27	58	Asvini	... 15	
	13	Sunday ...	30	31	● Amavasya	... 28	38	Bharani	... 17	
					Vrishabha					
								NIJA VAISAK		
	14	Monday ...	1	1	Padya	... 30	27	Krithika	... 20	
H	15	Tuesday ...	2	2	Bidige	... 33	15	Rohini	... 24	
	16	Wednesday	3	3	Tadige	... 36	57	Mrigasira	... 29	
	17	Thursday ...	4	4	Chouti	... 41	3	Aridra	... 38	
H	18	Friday ...	5	5	Panchami	... 45	35	Punarvasu	... 41	
G	19	Saturday ...	6	6	Shashti	... 50	7	Pushya	... 47	
	20	Sunday ...	7	7	Saptami	... 54	26	Aslesha	... 53	
	21	Monday ...	8	8	Ashtami	... 58	15	Makha	... 58	
	22	Tuesday ...	9	9	Navami	... 60	0	Pubba	... 60	
	23	Wednesday	9	10	Navami	... 1	3	Uttara	... 60	
G	24	Thursday ...	10	11	Dasami	... 3	5	Uttara	... 5	
	25	Friday ...	11	12	Ekadasi	... 3	58	Hastha	... 9	
	26	Saturday ...	12	13	Dwadasi	... 3	38	Chitta	... 10	
	27	Sunday ...	13-14	14	Trayodasi	... 2	4	Swathi	... 10	
					Chaturdasi	... 57	29			
	28	Monday ...	15	15	OPournima	... 55	33	Vishaka	... 9	
								NIJA VISAKH		
	29	Tuesday ...	1	16	Padya	... 50	24	Anuradha	... 7	
	30	Wednesday...	2	17	Bidige	... 44	48	Jeshta	... 4	
	31	Thursday ...	3	18	Tadige	... 38	37	Moola	... 0	
								Poorvashada	... 54	

Yogas	Feasts, Festivals, Government Holidays and Rainfall according to Nakshatras	Dates of Cattle Fairs, Cattle shows, Agricultural Exhibitions and other useful notes
Variyan ...	Bharani rain 2nd pada.	Sun rise 6-4.
Parigha ...		
Siva ...		
Siddha—Sadhya ...	Bharani rain 3rd pada.	
Subha ...		
Sukla ...		
Brahma ...	Bharani rain 4th pada,	
Mahendra ...		
Vaidruti ...	Sarwathra Ekadasi.	
Vishkambha ...	Krittika rain 1st pada.	
Preeti ...		
Ayushman ...		
Sowbhagya ...	Sarwathra Amavasya.	
SUDDHA.		
Sobhana ...	Krittike rain 2nd pada, Punnaga Gowri Vratham,	Vrishaba Sankramana.
Atiganda ...	Basavesvara jayanthi.	
Sukarma ...	Akshatadige.	
Dhriti ...	Sumaka Ganapathi Vratham Krittike rain 3rd pada.	
Shoola ...	Sri Shankara Jayanthi.	
Ganda ...	Shunmukha Shasti.	P. Sa.
Vriddhi ...		
Dhruva ..	Vasanthothsava at Srirangam Krittike rain 4th pada.	
Vyaghata ...		
Harsha ...		
Vajra ...	Empire day. Rohini rain 1st pada. Narasimhaswamy Car Festival.	Srirangapatam.
Siddhi ...	Festival at Kanchi Sarwathra Ekadasi.	
Vyatipatha ...	Sanitrayodashi.	
Variyan ...	Sri Narasimha Jayanti Nammalvar Tirunakshatra	Rohini rain 2nd pada Garudotsava at Kanchi.
Parigha ...	...	Vyasa Pournima.
SAHULA.		
Siva—Siddha ...	Lakshmiramaswamy Car Festival.	
Sadhya ...		
Subha ...	Rohini rain 3rd pada.	Lakshminarasimhaswamy Car Festival at Marahalli.

MAY 1934.

MONTHLY NOTES.

On fields ploughed after the previous harvest, sow in the Bharani rains the early mungar crops, *viz.*, gingelly, jola, green-gram, black-gram or groundnut which can be followed in the months of September or October by a second crop, such as horse-gram, cow-pea, bengal-gram or wheat. Sow all crops in rows and wide apart, *i.e.*, one foot, so as to make interculture easy later on.

On dry lands, not previously ploughed, ploughing should begin. Use the improved plough; for it will do the work of four country ploughs.

On wet lands sow a green manure crop, such as sunnhemp (30 seers to the acre) or sunnhemp and cow-pea; this will be ready for being ploughed in puddle-sown paddy in July.

For sugar-cane planted in February, March, apply a second dose of oil-cake and dig it in lightly.

On garden land under well irrigation, potatoes, onions and turmeric can now be planted.

During this or one of the previous hot weather months, areca garden owners should arrange to build areca driers; it will mean better quality of nuts than in drying over an open fire and greater convenience in working. Agricultural Inspectors will render all possible aid in constructing such driers.

would involve at east one year, if not more before the coffee could be planted. Shade trees—mostly Erythrina cuttings and seeds—and coffee were therefore put in simultaneously, trusting to various measures of nursing the crop through the hot weather, in the absence of shade to enable the crop to be satisfactorily established, Some of the methods were the following, *viz.*, (1) a heavy digging of the soil and leaving the soil in that coarsely broken condition, (2) the sowing and raising of a crop of Bogamedalloa (Tephrosia candida) as a quick growing shade and nurse crop, (3) the covering of the soil with a heavy mulch of vegetable refuse made up mostly of jungle grass.

In order to obtain incidentally some reliable information as to the relative value of these methods as a protection for young coffee, the strips were laid out as in regular field experiments in long narrow plots about 300 feet long and each treatment was repeated twice. The difference in the growth of the coffee under these three different methods has been very striking indeed. The heavily mulched strips were the best and the growth was far in advance of the other two. Next in order came the strips on which the soil was given a digging and the last was the one where the Bogamedalloa was grown. The Boga itself grew very luxuriantly but the coffee was very poor looking as if it had been smothered under shade and suffered in competition with this crop. It is also noteworthy that in the mulched strips the shade also showed much better and quicker growth than in the others. Weed growth was also completely suppressed and the strips were quite clean in this respect in great contrast with the other two treatments. The growth of the coffee was however the most striking feature, which after all is the real and useful test of the value of the treatment. The trash mulch under these conditions has been of very striking value as compared with the other treatments and the results afford indication in favour of its adoption in other places also.

The value of mulching the soil in preference to regular digging or stirring and in comparison with a cover crop was studied by the Department many years ago, in respect of their effect on the soil moisture, and the observation was recorded that even a very small crop of Bengal-gram depleted the soil moisture to considerable depths, a fact which perhaps will explain to some extent the effect of the Boga medalloa in the present experiment. In a broad way, this field experiment on the effect of mulching on young coffee confirms the results arrived at in small scale plot experiments on soil moisture noted at that time.

OIL BORDEAUX MIXTURE AGAINST KOLEROGA OF ARECANUT.

Owners of arecanut gardens in the malnad areas of Mysore are by now quite familiar with the use of Bordeaux mixture and its efficacy in the control of koleroga of arecanut. It is gratifying to observe that nearly 9,000 acres of arecanut were protected by spraying during the year 1932-33. In making up the spray mixture, it has always been the practice in these areas, to add a spreader to Bordeaux mixture. Lime-caseinate (½ lb. casein, and ½ lb. lime, in 1 gallon water) is the commonest

Holidays	English Dates	Days of the week	Dates: Chandramana	Dates: Sowramana	Tithies in Ghaliges and Vighaliges			Nakshatras in Ghali and Vighaliges		
	1	Friday ...	4	19	Chouti	...	31 57	Uttarashada	...	57
	2	Saturday ...	5	20	Panchami	...	35 22	Sravana	...	46
	3	Sunday ...	6	21	Shashti	...	19 1	Dhanishta	...	42
	4	Monday ...	7	22	Saptami	...	13 11	Satabhisha	...	39
	5	Tuesday ...	8	23	Ashtami	...	8 2	Poorvabhadra	...	36
	6	Wednesday	9	24	Navami	...	3 49	Uttarabhadra	...	34
	7	Thursday ...	10-11	25	Dasami	...	0 41	Revati	...	33
					Ekadasi	...	57 45			
	8	Friday ...	12	26	Dwadasi	...	57 45	Asvini	...	34
	9	Saturday ...	13	27	Trayodasi	...	58 20	Bharani	...	36
	10	Sunday ...	14	28	Chaturdasi	...	60 0	Krithika	...	39
	11	Monday ...	14-30	29	Chaturdasi	...	0 16	Rohini	...	43
					Amavasya	...	60 0			
	12	Tuesday ...	30	30	● Amavasya	...	2 58	Mrigasira	...	48
										JESHT
M	13	Wednesday	1	31	Padya	...	6 30	Aridra	...	53
	14	Thursday ...	2	32 Mith	Bidige una	...	10 38	Punarvasu	...	59
	15	Friday ...	3	1	Tadige	...	15 2	Pushya	...	60
	16	Saturday ...	4	2	Chouti	...	19 30	Pushya	...	5
G	17	Sunday ...	5	3	Panchami	...	23 44	Aslesha	...	11
	18	Monday ...	6	4	Shashti	...	27 28	Makha	..	17
	19	Tuesday ...	7	5	Saptami	...	30 29	Pubba	...	21
	20	Wednesday	8	6	Ashtami	...	32 32	Uttara	...	25
	21	Thursday ...	9	7	Navami	...	33 28	Hasta	...	28
	22	Friday ...	10	8	Dasami	...	33 12	Chitta	...	30
G	23	Saturday ...	11	9	Ekadasi	...	31 39	Swathi	...	30
	24	Sunday ...	12	10	Dwadasi	...	28 54	Visakha	...	29
M	25	Monday ...	13	11	Trayodasi	...	25 0	Anuradha	...	27
	26	Tuesday ...	14	12	Chaturdasi	...	20 8	Jeshta	...	24
	27	Wednesday	15	13	○ Pournami	...	14 29	Moola	...	20
										JESHTA
	28	Thursday ...	1	14	Padya	...	8 15	Poorvashada	...	16
	29	Friday ...	2-3	15	Bidige	...	1 41	Uttarashada	...	12
					Tadige	...	53 19			
	30	Saturday ...	4	16	Chouti	...	48 34	Sravana	...	7

Yogas	Feasts, Festivals, Government Holidays and Rainfall according to Nakshatras	Dates of Cattle Fairs, Cattle Shows, Agricultural Exhibitions and other useful notes
		Sun rise 5-57
Sukla ...	Sankashta Chaturthi.	
Bramha ...	Garuambudiswara Car Festival.	
Mahendra ...		
Vaidhriti ...		
Vishkamba ...	Rohini rain 4th pada.	
Preeti ...		
Ayushman ...		
Sowbhagya ...	Mrigasira rain 1st pada.	Ekadasi for Smarthas.
Shobana ...	Vishnava Ekadasi.	
Atiganda ...		
Sukarma ...		
Dhriti ...	Sarvathra Amavasya.	Mrigasira rain 2nd pada
Shoola ...		
UDDHA.		
Ganda ...	Akari-Char-Shumba.	
Vriddhi ...	Mrigasira rain 3rd pada.	
Dhruva ...	Mithuna Sankramana, Kadali Gowrivratha.	
Vyaghata ..		
Harsha ...	King Emperor's Birthday,	
Vajra ..	Mrigasira rain 4th pada.	
Siddhi ...		
Vyatipata ...		
Variyan ...	Aridra rain 1st pada.	
Varigha ...	Dasavidha Papahara Dasami.	
Siva ...	H. H. the Maharaja's Birthday.	Sarwathra Ekadashi
Siddha ...	Pradosha.	
Sadhya ...	Id-meelad Aridra rain 2nd pada.	
Shuba ...		
Sukla ...		
AHULA.		
Mahendra ...	Aridra rain 3rd pada.	
Vaidhriti ...		
Vishkamba ...	Sankashta Chaturthi.	

JUNE 1934.

MONTHLY NOTES.

The south-west monsoon begins in this month, and it is really the season for preparing land for sowing. For, nearly all the fields remain untouched baking and hardening through the hot months and only the heavy showers of this month can moisten them sufficiently well to plough. Fields, however, which were given the first ploughing in the previous month, should be cross-ploughed now, so as to kill the weeds which may have sprouted in the interval. In the preparation of the soil for sowing, the point to remember is the great saving in time and money which can be effected by the use of the improved implements such as the improved or the mould-board plough, the six shovel cultivator, the disc harrow and the *doddakunte*. All these implements can be seen in the Government Experimental Farms. They are stocked and sold by the Agricultural Department, and can be had in the Central Implement Depot in Bangalore and in the Depots of the Agricultural Inspectors in the Districts.

On fields got ready for sowing, main crops of jola, Dharwar-American cotton groundnut and dry land paddy may be sown.

In all villages affected with Kamblihula, raiyats should look for the moths that will emerge after very heavy showers. These moths will have to be hand picked and killed if raiyats want to avoid attack on their fields by this pest.

After the mungar rains, the paddy grasshoppers emerge on the bunds. When young, they feed on the grass on the bunds. They cannot jump long distances then, and are easily caught by sweeping large bags of cotton cloth over the bunds. Enormous numbers can be caught in this way. They are then crushed or thrown into water to which has been added a little kerosene. All the raiyats in the village should co-operate. The bags should be 5 feet long and 2 feet × 4 feet at the mouth. The opening is supported at the sides by two sticks 3 feet each and two men sweep the bunds at a run. See Bulletin No. 1.

Remedial measures against koleroga of the Areca palm in the malnad should be carried out in this month.

spreader, now being used by the garden owners, though a few prefer using resin-soda (2 lbs. resin and ½ lb. soda ash boiled in 1 gallon water).

Following the experiments carried out at the Rothamstead Experimental Station, our attention was directed to the possibility of using, for this purpose, cheap vegetable oils, locally obtained. Experiments were carried out on the Marthur Farm near Talaguppa, where two acres of garden were treated with Oil Bordeaux.

The mixture was prepared as follows:—

To 12½ gallons or 50 measuring seers of the copper sulphate solution, add ⅛ gallon or ½ measuring seer of oil. With the oil floating on the surface, pour the copper sulphate solution slowly into the milk of lime (12½ gallons), with vigorous stirring. With the formation of the Bordeaux precipitate, the oil gets emulsified. Three different oils were tried, *viz.*, gingelly oil, groundnut oil, and Kusume (safflower) oil. The spreading quality of the spray on the bunches was found to be quite good, and the spray was found to be retained on the nuts, after nearly 80 inches of rainfall. Though owing to the severity of the monsoon of 1933, the disease made its apperance in the rest of the garden sprayed with casein Bordeaux, the areas sprayed with oil Bordeaux were practically free. Experiments will be taken up to see if less quantity of oil than at first tried could safely be used. In Mysore, we are at present purchasing from North India 40 tons of casein for spraying purposes. This could well be replaced by our cheap vegetable oils. I trust that our co-operators in this work will, as usual, give this mixture a trial, on half an acre of their garden, during the next spraying season.

POSSIBILITIES OF REDUCING THE COST OF PRODUCTION OF MYSORE SILK.

The silk Industry in Mysore has been seriously affected due to the competition of foreign silks which are being sold at abnormally low prices not only in the outside markets which were consuming Mysore silk but even in the home markets. Mysore is admirably fitted by soil, climate and local conditions for silk production. There is practically no part of the State where climatic conditions will not admit of extension of the industry. There is inherited skill in rearing silk worms and there is also a large population which can easily take to sericulture. In spite of these natural advantages, the sericulturists in Mysore cannot meet the severe competition from foreign silks because they have not yet adopted methods calculated to reduce the cost of production of Mysore silk. The sericulturists in Mysore are poor, illiterate and live in interior villages. Improvements are being gradually introduced in all the operations comprised in sericulture in areas which have come under the influence of the Department of Sericulture. The immediate need is for our sericulturists to adopt all possible steps to reduce the cost of production of Mysore silk so that, Mysore silk can compete successfully with the imported silks. How the cost of production of silk in Mysore can be

Holidays	English Dates	Days of the week	Dates: Chandramana	Dates: Sowramana	Tithies in Ghaliges and Vighaliges			Nakshatras in Ghaliges and Vighaliges		
	1	Sunday ..	5	17	Panchami ..	42	39	{Dhanishta .. 3 / Satabisha .. 56}		
	2	Monday ..	6	18	Shashti ..	37	27	Poorvabhadra ..	56	
	3	Tuesday ..	7	19	Saptami ..	33	8	Uttarabhadra ..	54	
	4	Wednesday..	8	20	Ashtami ..	29	57	Revati ..	53	
	5	Thursday ..	9	21	Navami ..	27	54	Asvini ..	53	
	6	Friday ..	10	22	Dasami ..	27	6	Bharani ..	55	
	7	Saturday ..	11	23	Ekadasi ..	28	32	Krithika ..	51	
	8	Sunday ..	12	24	Dwadasi ..	29	7	Rohini ..	60	
	9	Monday ..	13	25	Trayodasi ..	31	42	Rohini ..	2	
	10	Tuesday ..	14	26	Chaturdasi ..	35	9	Mrigasira ..	6	
	11	Wednesday..	30	27	●Amavasya ..	39	12	Aridra ..	12	
								ASHADA		
	12	Thursday ..	1	28	Padya ..	43	35	Punarvasu ..	18	
	13	Friday ..	2	29	Bidige ..	48	6	Pushya ..	24	
	14	Saturday ..	3	30	Tadige ..	52	23	Ashlesha ..	29	58
	15	Sunday ..	4	31 Kataka	Chouti ..	56	12	Makha .	35	32
	16	Monday ..	5	1	Panchami ..	59	20	Pubba ..	40	27
	17	Tuesday ..	6	2	Shashti ..	60	0	Uttira ..	44	33
	18	Wednesday..	6	3	Shashti ..	1	15	Hastha ..	48	35
	19	Thursday ..	7	4	Saptami ..	2	16	Chitta ..	49	30
	20	Friday ..	8	5	Ashtami ..	2	4	Swathi ..	50	8
G	21	Saturday ..	9–10	6	{Navami .. 0 38 / Dasami .. 57 38}			Vishaka ..	49	32
	22	Sunday ..	11	7	Ekadasi ..	54	23	Anuradha ..	47	47
	23	Monday ..	12	8	Dwadasi ..	49	30	Jeshta ..	45	13
	24	Tuesday ..	13	9	Trayodasi ..	43	49	Moola ..	41	23
	25	Wednesday	14	10	Chaturdasi ..	34	34	Poorvashada ..	38	10
	26	Thursday ..	15	11	OPournima ..	31	3	Uttarashada ..	32	40
								ASHADA		
	27	Friday ..	1	12	Padya ..	24	24	Sravana ..	28	2
	28	Saturday ..	2	13	Bidige ..	18	0	Dhanishta ..	23	41
	29	Sunday ..	3	14	Tadige ..	12	2	Satabisha ..	19	46
	30	Monday ..	4	15	Chouti ..	6	42	Poorvabhadra ..	16	35
H	31	Tuesday ..	5-6	16	{Panchami .. 2 21 / Shashti .. 56 23}			Uttarabhadra ..	14	22

Yogas	Feasts, Festivals, Government Holidays and Rainfall according to Nakshatras	Dates of Cattle Fairs, Cattle Shows, Agricultural Exhibitions and other useful notes
Preeti ..		Sun rise 6-1
Ayushman ..	Aridra rain 4th pada.	
Sowbhagya ..		
Shobana ..	Trilochana Gowri Puja. Punarvasu rain 1st pada.	
Atiganda-Sukarma ..		
Dhriti ..		
Shoola ..	Sarvathra Ekadasi.	
Ganda ..	Pradosha, Kurma Jayanthi.	
Vriddhi ..	Punarvasu rain 2nd pada.	
Dhruva ..		
Vyaghata ..	Sarwathra Amavasya.	
SUDDHA.		
Harsha ..	Punarvasu rain 3rd pada.	
Vajra ..		
Siddha ..	Devambrideswara Car Festival.	
Vyatipata ..		
Variyan ..	Dakshinayana Punyakala. Punarvasu rain 4th pada.	
Parigha ..		
Siva ..		
Siddha ..	Pushya rain 1st pada.	
Sadhya ..		
Shuba ..		P. Sa.
Sukla ..	Prathama Ekadasi.	
Brahma ..	Sayana Dwadasi. Pushya rain 2nd pada.	
Mahendra ..	Pradosha.	
Vaidhriti ..		
Vishkamba ..	Vyasa Pournima. Pushya rain 3rd pada. Lunar Eclipse.	
BAHULA.		
Preeti-Ayushman ..		
Sowbhagya ..	Chaturmasa Dwitiya.	
Sobana ..		
Atiganda ..	Pushya rain 4th pada. Sankasta Chouti.	
Sukarma ..	Tikachar's Punya Dina.	

JULY 1934.

MONTHLY NOTES.

Nearly all the main crops of the year, *viz.*, ragi, jola, groundnut, sajje, save haraka with their subordinate *akkadi* crops are sown this month.

On wet lands, paddy is sown in puddle if water is available, or sown in a dry (not irrigated or puddled) seed-bed. It pays to use artificial manures for paddy. Use a mixture of 75 lbs. Ammonium sulphate and 150 lbs. superphosphate per acre. Even dry crops can be so manured and doses for different crops can be ascertained from the various depots. In the malnad this is the month for layering pepper for propagation ; select the best hermaphrodite vines in the garden for the purpose.

Both ragi and paddy intended for seed should be selected before being sown ; for it has been found that the sowing of such selected seeds increases the yield materially. The selection is for securing heavy grains ; for this purpose, prepare a solution of ordinary salt in water using one seer of salt to two of water ; put the seed paddy or ragi into the solution and stir ; remove and reject the grains which float and use the grains which sink to the bottom for seed, after drawing the salt water away and giving the grain a washing with fresh water. Treat Jola with a solution of copper sulphate for smut or *kadige roga*. Packets of copper sulphate with full instructions regarding the method of using it can be had in all the depots of the Department.

The new variety of ragi called H22 is a high yielder both in grain and straw. It is now grown on thousands of acres. Try its suitability to your tract. Other good strains like H2, and H 40 can also be had on application to the Department.

During the first half of this month, chillies and tobacco intended to be raised as dry crops should be sown in nursery beds so as to have seedlings ready for transplanting about the end of the next month.

Those who are troubled with ground grubs attacking cane should get coolies to look for the young ones which will be found not often below the surface. If these are packed off and destroyed no trouble will arise later and canes will be safe.

reduced without affecting the income of the sericulturist is clearly explained below:—

Reducing the cost of production of mulberry leaves.

To rear worms from one ounce of seed, about 800 lbs. of leaves are required and the cost of the leaves at present is about Rs. 11-11-7 (average for areas producing reeling cocoons), *i e.*, about 2·64 pies per lb. The cost of mulberry leaves is the largest item of expenditure in rearing. From the results of the experiments so far conducted, in Government Farms, it is ascertained that by using suitable manures, by cultivating varieties of mulberry of heavy yield and by improving cultural operations, it is quite possible to get a larger output of leaves per acre of bush mulberry without in any way increasing the annual expenditure on the garden. The minimum increase in the output of leaves per acre would be about 2,000 lbs. This reduces the cost of production per lb. of leaf from 2·64 pies to 2 pies. Thus, the cost of leaf required per ounce of seed would be reduced from Rs. 11-11-7 to Rs. 8-5-3. This enables the sericulturist to put the cocoons on the market, at four annas a pound as against five annas a pound now. That is a reduction of twenty per cent.

Even, if the sericulturists plant mulberry topes, they cannot completely do away with the bush plantations as the leaves required for the worms till they pass fourth moult, will have to be obtained from bush plantations. Hence the raiyat has to have a small area of bush and a larger area of tree plantation. The leaves of the trees have to be harvested once for all to feed the worms in the fifth age. This is the period when the largest quantity of leaf (about 660 lbs.) is consumed, *i. e.*, five times the quantity consumed in the earlier stages. From the data collected in the Government Gardens, where trees have been planted it is seen that the cost per pound of leaf from trees would amount to about 1·81 pies per pound as against 4·4 pies per pound of leaves from bushes.

The raiyat can grow other catch crops in the land planted with mulberry trees. The cost of cultivation of such crops is realised by the yield of catch crops and it is not necessary to incur any more expenditure on mulberry trees, except once in two or three years when suitable manure may have to be applied to the trees. In fact, as the raiyat gets other catch crops for the amount spent on cultivation he will be getting mulberry leaves more or less free of cost. But, as he has to take care of the trees during the first six or seven years after planting and before he can harvest good supply of leaves, it may be safely assumed that the cost of leaf from trees would not exceed 1·5 pies per pound including extra labour for picking tree leaf.

This would enable the raiyat to reduce his rearing expenses from Rs. 11-11-7 to Rs. 6-9-8 per ounce of seed and realise a good return even if the cocoons are sold at four annas a pound.

In areas which have not come under the influence of the activities of the Sericulture Department, the sericulturist is losing two crops a year on an average, due to unsatisfactory seed supply and defective rearing methods. Due to the peculiar diseases affecting silk worms, the fact whether the crop would be successful or not cannot be ascertained in the early stages by most of the sericulturists. When the worms have

Holidays	English Dates	Days of the week	Dates: Chandramana	Dates: Sowramana	Tithies in Ghaliges and Vighaliges	Nakshatras in Ghaliges and Vighaliges
	1	Wednesday	7	17	Saptami ... 56 38	Revati ... 13 1
	2	Thursday ...	8	18	Ashtami ... 55 46	Asvini ... 13 1
	3	Friday ...	9	19	Navami ... 56 9	Bharani ... 14 3
	4	Saturday ...	10	20	Dasami ... 52 42	Krithika ... 16 5
	5	Sunday ...	11	21	Ekadasi ... 60 0	Rohini ... 20 3
	6	Monday ...	11	22	Ekadasi ... 0 28	Mrigasira ... 25
	7	Tuesday ...	12	23	Dwadasi ... 3 53	Aridra ... 30 1
	8	Wednesday	13	24	Trayodashi ... 8 53	Punarvasu ... 36
	9	Thursday ...	14	25	Chaturdasi ... 12 21	Pushya .. 42
	10	Friday ...	30	26	● Amavasya ... 16 49	Aslesha ... 47 55
						SRAVANA
	11	Saturday ...	1	27	Padya ... 21 2	Makha .. 53 32
	12	Sunday ...	2	28	Bidige ... 25 1	Pubba ... 58 52
	13	Monday ...	3	29	Tadige ... 28 7	Uttira ... 60 0
	14	Tuesday ...	4	30	Chouti ... 30 20	Uttira ... 2 52
	15	Wednesday	5	31	Panchami ... 31 24	Hastha ... 6 11
	16	Thursday ...	6	32	Shashti ... 31 22	Chitta ... 8 18
				Simha		
	17	Friday ...	7	1	Saptami ... 30 1	Swathi ... 9 12
G	18	Saturday ...	8	2	Ashtami ... 27 27	Vishaka ... 8 54
	19	Sunday ...	9	3	Navami ... 23 45	Anuradha .. 8 26
	20	Monday ...	10	4	Dasami ... 19 4	Jeshta ... 4 56
	21	Tuesday ..	11	5	Ekadashi ... 13 30	Moola ... 1 30
						Poorvashada ... 56 2
	22	Wednesday	12	6	Dwadasi ... 8 23	Uttarashada ... 52 52
G	23	Thursday ...	13-14	7	Trayodasi ... 0 54 Chaturdasi. 53 22	Sravana ... 48 18
G	24	Friday ...	15	8	○ Pournima ... 48 51	Dhanishta ... 43 51
						SRAVANA
	25	Saturday ...	1	9	Padya ... 41 51	Satabisha ... 31 47
	26	Sunday ...	2	10	Bidige ... 36 36	Poorvabhadra ... 36 26
	27	Monday ...	3	11	Tadige ... 32 13	Uttarabhadra ... 33 54
	28	Tuesday ...	4	12	Chouti ... 28 54	Revati ... 32 33
	29	Wednesday	5	13	Panchami ... 26 46	Asvini ... 32 18
	30	Thursday ...	6	14	Shashti ... 25 52	Bharani ... 33 16
	31	Friday ...	7	15	Saptami ... 26 13	Krithika .. 35 27

Yogas	Feasts, Festivals, Government Holidays and Rainfall according to Nakshatras	Dates of Cattle Fairs, Cattle Shows, Agricultural Exhibitions and other useful notes
		Sun Rise 6–9
Dhriti ...	Sri Chamundeswari Jayanthi.	
Soola ...	Padinettam Parap. Aslesha rain 1st pada.	
Ganda ...	Krishnarajamudi Car Festival. Melkote.	
Vriddhi ...		
Dhruva ...	Ekadasi for Smarthas.	
Harsha ...	Ekadasi for Vishnavas. Ashlesha rain 2nd pada.	
Harsha ...	Pradosha.	
Vajra ...		
Siddhi ...	Aslesha rain 3rd pada. Jyoti Maheswara Car Festival.	
Vyatipata ...	Bheemeswara Car Festival.	
SUDDHA.		
Variyan ...	Sravana Saturday.	
Parigha ...		
Siva ...	Aslesha rain 4th pada.	
Siddha ...	Mangalagowri Vratha.	
Sadhya ...	Garuda Panchami.	
Shuba ...	Makha rain 1st pada.	
Sukla ...		
Brahma ...	Sravana Saturday.	P. Sa.
Mahendra ...		
Vaidhriti ...		
Vishkamba ...	Makha rain 2nd pada.	
Preeti ...	Sarvathra Ekadasi.	
Ayushman ...	Pradosha.	
Sowbhagya ...	Makha rain 3rd pada. Rig, Upakarma.	
Sohbana ...	Yajur Upakarma. & Varamahalakshmi Vratham	
BAHULA		
Atiganda. Sukarma ...	Gayatri Japam.	
Dhriti ...	Raghavendraswamy Punyadina.	
Shoola ...	Sankashta chaturthi. Makha rain 4th pada.	
Ganda ...	Mangala Gowri Vratha.	
Vriddhi ...		
Dhruva ...	Prasannakrishna Car Festival. Pubba rain 1st pada.	
Vyaghata ...	Krishna Ashtami.	

AUGUST 1934.

MONTHLY NOTES.

A busy month for inter-culturing the main crops. It is well to note that for cultivating between the rows, the small *kunte* with an entire blade—a miniature *doddakunte*—is an excellent implement, as it works the whole of the space between the rows. Labour can be economised by using two or three of these with one team.

On black cotton soils, the main crop of local cotton (*sannahatti*) with its mixture of *navane* should be sown about the middle of this month. The improved strain called selection 69 is the best to grow ; it is a superior cotton and gives a higher money return.

On fields kept repeatedly ploughed, harrowed and weeded during the past three months, chillies should be transplanted ; so should tobacco, the transplanting of which may be continued from about the latter part of this month to the middle of the next.

On garden lands under well irrigation, the main rainy season grain crop of ragi may be transplanted.

The lime tree borer will be found in this month in small twigs, dry because they are girdled by them. These twigs have to be broken off with the aid of a forked twig if the trees are to be prevented from danger by the borer. See bulletin on the subject to be had from the Department.

grown up, when most of the leaf and the necessary labour utilised, and when the ryot expects the worms to form cocoons in four or five days, then he notices that the worms are affected with disease and has to throw them away. In a few cases, he gets a very low yield from this crop also. By improving the seed supply and by adopting improved methods of rearing, the sericulturist can harvest all the crops successfully without much additional expenditure. This would enable him to sell the cocoons cheaper than at present and realise a decent income.

The output of cocoons per ounce of seed (Mysore race) is at present about 50 lbs. By adopting improved methods of rearing and by using disease free seed only, the output per ounce can be increased to at least 70 lbs. without extra expenditure. If cross breeds are reared, the output can be increased to at least 100 lbs. per ounce of seed reared. As the sericulturist gets a higher yield of mulberry leaf in his garden due to improved varieties, fertilisers and improved cultural operations as stated above the output of cocoons per acre would be very much increased without additional expenditure. This would enable him to get a fair return even if he sells the Mysore or Hybrid cocoons at four annas a pound. Thus, the actual silk worm rearer will be in a favourable position even if the cocoon prices are less than at present.

The average output of cocoons per acre of rainfed garden which at present is about 300 lbs. per year can be increased to about 500 lbs. if Mysore worms are reared and 700 lbs. if hybrids are reared, and if all the improvements in rearing are adopted.

Cost ot Reeling.

In the cost of reeling, the heaviest item is the cost of cocoons. At present, about 13 lbs. of Mysore cocoons are used in country charkas to produce one pound of silk, about 18 lbs. of cocoons in Domestic Basins and in the Filature for one pound of silk. Out of the total cost of production of silk, 70 percent is the cost of cocoons.

The cost of cocoons would be reduced considerably if the cocoons are made available at four annas a pound.

But actually the cocoons produced by worms reared out of disease free layings contain more silk and 12 lbs. of these give about one pound of silk in country charkas, thus reducing the cost of production by about Rs. 1-1-0 per pound. In the same way, the cost of production of high grade silk is reduced by Rs. 1-6-0 per pound as about 17 pounds of Mysore cocoons are enough to give one pound of silk.

The Mysore cocoons do not admit of very satisfactory grading and the work in the improved appliances is to some extent retarded when good cocoons are not available for reeling. The cross breed cocoons can be graded and used with great advantages for reeling in domestic basins and the filatures. When the cocoons are good, the yield per day would be more. This would reduce the cost of production of silk, under labour, and other items of expenditure as these remain the same for an increased output per day. By using cross breed cocoons in the domestic basins and the filature, the cost of production per pound of silk can be reduced by Rs. 2-6-0 on account of cocoons alone. The other expenses under manufacturing charges can be reduced by one rupee to Rs. 1-4-0 per

Holidays	English Dates	Days of the week	Dates: Chandramana	Dates: Sowramana	Tithies in Ghaliges and Vighaliges	Nakshatras in Ghalige and Vighaliges
	1	Saturday ..	8	16	Ashtami .. 22 44	Rohini .. 38
	2	Sunday ..	9	17	Navami 30 18	Mrigasira .. 43
	3	Monday ..	10	18	Dasami .. 33 43	Aridra .. 8
	4	Tuesday ..	11	19	Ekadasi .. 37 48	Punarvasu .. 53 4
	5	Wednesday	12	20	Dwadasi .. 42 16	Pushya .. 59 4
	6	Thursday ..	13	21	Trayodasi .. 46 51	Ashlesha .. 60
	7	Friday ..	14	22	Chaturdasi .. 51 17	Ashlesha .. 5 4
	8	Saturday ..	30	23	●Amavasya .. 55 18	Makha .. 11 3
						BHADRAPAD
	9	Sunday ..	1	24	Padya .. 58 35	Pubba .. 16 4
	10	Monday ..	2	25	Bidige .. 60 0	Uttira .. 21 1
	11	Tuesday ..	2	26	Bidige .. 0 41	Hastha .. 24 4
G	12	Wednesday.	3	27	Tadige .. 1 55	Chitta .. 27
	13	Thursday ..	4	28	Chouti .. 1 51	Swathi .. 28 1
	14	Friday ..	5–6	29	Panchami .. 0 44 Shashti .. 57 51	Vishaka .. 28 1
	15	Saturday ..	7	30	Saptami .. 54 54	Anuradha .. 27
	16	Sunday ..	8	31	Ashtami .. 50 13	Jeshta .. 24 4
				Kanya		
	17	Monday ..	9	1	Navami .. 44 40	Moola .. 21 2
	18	Tuesday ..	10	2	Dasami .. 38 33	Poorvashadha .. 17 2
	19	Wednesday	11	3	Ekadasi .. 32 0	Uttarashada .. 13
	20	Thursday ..	12	4	Dwadasi .. 25 37	Sravana .. 8 2
	21	Friday ..	13	5	Trayodasi .. 19 10	Dhanishta .. 3 57 Satabisha .. 55 4
G	22	Saturday ..	14	6	Chaturdasi .. 13 17	Poorvabhadra .. 56 3
	23	Sunday ..	15	7	○Pournami .. 8 2	Uttarabhadra .. 53 20
						BHADRAPADA
	24	Monday ..	1	8	Padya .. 3 40	Revati .. 51 40
	25	Tuesday ..	2–3	9	Bidige .. 0 21	Asvini .. 51 8
	26	Wednesday	4	10	Tadige .. 57 26 Chouti .. 57 2	Bharani .. 51 50
	27	Thursday ..	5	11	Panchami .. 57 32	Krithika .. 53 44
	28	Friday ..	6	12	Shashti .. 59 7	Rohini .. 56 48
	29	Saturday ..	7	13	Saptami .. 60 0	Mrigasira .. 57 42
	30	Sunday ..	7	14	Saptami .. 2 0	Mrigasira .. 1 5

Yogas	Feasts, Festivals, Government Holidays and Rainfall according to Nakshatras	Dates of Cattle Fairs, Cattle Shows, Agricultural Exhibitions and other useful notes
Harsha ...	Kanvar Tirunakshatram. Vishnavanam Sri Krishna Jayanthi.	Sun rise 6–12
Vajra ..		
Siddhi ..	Pubba rain 2nd pada.	
Vyatipata ..	Sarwathra Ekadasi.	
Variyan ..		
Parigha ..	Pubba rain 3rd pada Prodosha.	
Siva ..	Masa Sivaratri.	
Siddha ..	Sarwatra Amavasya.	
SUDDHA.		
Sadhya ..		
Shubha ..	Pubba rain 4th pada.	
Sukla ..	Upakarma for Samveda.	
Brahma ..	Gowri and Ganesha.	
Mahendra ..	Uttira rain 1st pada Rishi Panchami.	
Vaidruti ...		
Vishkamba ...		
Preeti ...	Uttara rain 2nd pada.	
Ayushman ...	Shadaseethi Punyakala. Nanda Navami.	
Shobhana ...	Ksheeravratham.	
Atiganda ..	Sarwathra Ekadasi.	
Sukarma ..	Uttara rain 3rd pada. Pradosha. Vamana Jayanthi, Sravana dwadashi. Vedanta Desikar Tirunakshatram.	
Dhriti ..	Madana Trayodashi.	
Shoola ..	Anantapadmanabha Chaturdashi.	P. Sa.
Ganda ..	Uttira rain 4th pada.	
BAHULA.		
Vriddhi ..		
Dhruva ..		
Harsha ..	Maha Bharani.	
Vajra ..	Hastha rain 1st pada.	
Siddha ..		
Vyatipata ..	Peratasi Saturday.	
Variyan ..	Madyashtami	

SEPTEMBER 1934.

MONTHLY NOTES.

The early *mungar* crops sown in the *bharani* rains become ready for harvest towards the latter part of the month; after harvest, plough these lands and prepare them for a second crop (*vide* notes under May for list of crops thus to be sown).

It should be noted that from this month onwards till the close of the year, green fodder is in full flush. The manure, principally the urine from the animals, is very valuable during this period, much more so than during the hot months or early rains when all animals, excepting those in milk or working bullocks are practically on starvation rations. Special care should be taken to see that all the urine from the stalls finds its way into the manure pit.

Towards the end of this month, on well-drained wet lands and garden lands Cambodia cotton may be sown.

Paddy is liable to attack by stem borer from this month up to November. The shoot is killed by a caterpillar, which bores into it. The plants attacked will have the shoots withered. The caterpillars turn into moths. The moths lay eggs in masses, covered by golden hairs, on the leaves. These are easily seen and should be handpicked and destroyed. Light traps (hurricane lanterns placed in a basin with a little water and kerosene) kept in the field at a height of 4 ft. from the ground will attack and kill the moths. If these measures are not adopted, 10 to 20 per cent of the crops may be destroyed. Weeds also must be removed. Pest common in the Mysore District.

pound if a large filature is established and if the silk waste fetches higher prices, thus the reduction in costs would be Rs. 3-6-0 to Rs. 3-10-0 per pound of high grade silk.

The sericulturists in Mysore should organise themselves and adopt immediately all possible steps to reduce the cost of production of Mysore silk so that Mysore silk can compete successfully with foreign silks and thus preserve the important subsidiary industry which utilises the leisure period of the agriculturists and which brings recurring income, to about two lakhs of families in the State.

NASAL GRANULOMA IN CATTLE.

Nasal Granuloma or snoring disease of cattle, popularly known as "Mooguhunnu" "Peenasi" "Gorattai" is an enzootic chronic disease of cattle, characterised by ulcerating growths on the nasal mucous membrane with mucopurulent and sometimes blood tinged discharge from one or both nostrils; as the disease advances the affected animals show marked respiratory distress.

Although the disease is prevalent among cattle all over India, it is almost ubiquitous in the State and Mysore cattle have earned notoriety as the most susceptible.

The cause of the disease is now known to be due to a schistasome carried by certain species of snails abounding in watering places near villages; cattle being affected while drinking in pools, tanks and slow running streams, where snails breed abundantly.

The earliest symptom noticed in an affected animal is sneezing with a mucous discharge and as the disease advances large ulcerating nodules are formed, the discharge becoming more profuse in quantity and mucopurulent, latterly, blood tinged in character. The affected animals emit a sort of snoring sound during breathing and in advanced cases show marked difficulty and are distressed while at work. On a naked eye examination each of the growths on the nasal membrane, will be found to contain a white spot which when cut and examined under the microscope will reveal the presence of ova of schistasomes.

The disease is prevalent all the year round, fresh attacks depending upon the opportunity to pick up the infection. It is said that the disease is more severe during the rainy and winter months than during summer and spring. This is probably due to the drying up of village pools and tanks, and consequent destruction of the intermediary hosts—the Snails. In some of the villages, the disease is almost pandemic and all imported cattle get affected within two to four months of thnir arrival, and this can be accounted for only by the contaminated watering tanks. Whereas, animals that have been watered from draw-wells, and young calves within six to eight months that are not sent with the village herd, are almost free from the affection. This fully demonstrates the prime necessity for a pure and wholesome water supply for our animals.

Now that the cause of the affection is difinitely proved to be due to schistasomes, the efficacy of antimony salts in the treatment of the

Holidays	English Dates	Days of the week	Dates: Chandramana	Dates: Sowramana	Tithies in Ghaliges and Vighaliges	Nakshatras in Ghaliges and Vighaliges
	1	Monday ..	8	15	Ashtami .. 5 31	Aridra .. 6
	2	Tuesday ..	9	16	Navami .. 9 41	Punarvasu .. 11
	3	Wednesday	10	17	Dasami .. 14 13	Pushya .. 17
	4	Thursday ..	11	18	Ekadasi .. 18 52	Aslesha .. 23
	5	Friday ..	12	19	Dwadasi .. 23 21	Makha .. 29
	6	Saturday ..	13	20	Trayodasi .. 27 23	Pubba .. 34
	7	Sunday ..	14	21	Chaturdasi .. 30 44	Uttira .. 39
G	8	Monday ..	30	22	● Amavasya .. 33 9	Hastha .. 43
						Asvi
G	9	Tuesday ..	1	23	Padya .. 34 29	Chitta .. 45
	10	Wednesday	2	24	Bidige .. 34 38	Swathi .. 47
	11	Thursday ..	3	25	Tadige .. 33 28	Vishakha .. 8
	12	Friday ..	4	26	Chouti .. 31 5	Anuradha .. 46
	13	Saturday ..	5	27	Panchami .. 28 18	Jeshta .. 46
	14	Sunday ..	6	28	Shashti .. 22 58	Moola .. 41
G	15	Monday ..	7	29	Saptami .. 18 34	Poorvashada .. 37
G	16	Tuesday ..	8	30	Ashtami .. 11 35	Uttarashadha .. 33
				Th	ula.	
G	17	Wednesday	9-10	1	Navami .. 5 13 Dashami ... 53 30	Sravana .. 28
G	18	Thursday ..	11	2	Ekadasi .. 52 20	Dhanishta .. 24
	19	Friday ..	12	3	Dwadasi .. 46 29	Satabisha .. 19
G	20	Saturday ..	13	4	Trayodasi .. 41 20	Poorvabhadra .. 16
	21	Sunday ..	14	5	Chaturdasi .. 38 5	Uttarabhadra .. 13
	22	Monday ..	15	6	○ Pournami .. 33 54	Revati .. 11
						Asvij
	23	Tuesday ..	1	7	Padya .. 31 54	Asvini .. 10
	24	Wednesday	2	8	Bidige .. 31 10	Bharani .. 10
	25	Thursday ..	3	9	Tadige .. 31 40	Krithika .. 12
	26	Friday ..	4	10	Chouti .. 33 21	Rohini .. 15
	27	Saturday ..	5	11	Panchami .. 36 5	Mrigasira .. 19
	28	Sunday ..	9	12	Shashti .. 39 42	Aridra .. 23
	29	Monday ..	7	13	Saptami .. 44 1	Punarvasu .. 29
	30	Tuesday ..	8	14	Ashtami .. 48 39	Pushya .. 35
	31	Wednesday	9	15	Navami .. 53 31	Aslesha .. 41

Yogas	Feasts, Festivals, Government Holidays and Rainfall according to Nakshatras	Dates of Cattle Fairs, Cattle Shows, Agricultural Exhibitions and other useful notes
Parigha ..		Sun rise 6-12
Siva ..		
Siddha ..	Hastha rain 3rd pada.	
Sadhya ..	Sarwathra Ekadasi,	
Shuba ..	Pradosha.	
Sukla ..	Mahasivaratri. Peratasi Sanivara.	
Brahma ..	Hasta rain 4th pada.	
Mahendra ..	Mahalya Amavasya.	
SUDDHA.		
Vaidruti ..	Beginning Dasara.	
Vishkambha ..	Chitta rain 1st pada.	
Preeti ..		
Ayushman ..		
Sowbhagya ..	Garudostavam at Thirupathi.	
Shobana ..	Saraswathi Puja, Chitta rain 2nd pada.	
Athiganda ..	Mahishasura Samhara.	
Sukarma ..	Durgashtami. Tirupathi Venkatachalaswamy Car festival.	
Dhriti ..	Mahanavami. Vijaya Dasami. Chitta rain 3rd pada.	
Ganda-Vriddhi ..	Ekadasi for Smarthas.	
Dhruva ..	Ekadasi for Vaishnavas.	
Vyaghata ..	Pradosha. Chitta rain 4th pada.	P. Sa.
Harsha ..	Sri Chamundeswari Car festival.	
Vajra ..	Chandradarsan.	
BAHULA.		
Siddha ..		
Vyathipatha ..	Swathi rain 1st pada.	
Varigan ..		
Parigha ..	Sankashta Chouti.	
Siva ..	Swathi rain 2nd pada.	
Siddha ..		
Sadhya ..	Swathi rain 3rd pada.	
Shuba ..		

OCTOBER 1934.

MONTHLY NOTES.

The month for the sowing of the *hingar* crops, such as *hingar* jola, the various grams, coriander, wheat, cheap grains like *baragu* or *same*, *etc.*, on dry lands.

On wet and garden lands, potatoes, Cambodia cotton and the various garden crops can be sown.

In some parts of the State this is also one of the seasons for the planting of sugar-cane ; this is done under tanks which are known to get very good supplies almost unfailingly during the heavy *hasta*, *chitta* rains of this month, which will carry the crop through the hot months, when the cane will be in full growth and would require heavy irrigation. This planting has the advantage of enabling the raiyat to mill cane long before the general milling season begins, and to put jaggery on the market when prices rule high—(*vide* notes under April in *re* seed setts for planting).

Look for avare pod borer of which a few caterpillars will be found on the fresh few flower spikes that will appear this month. If they are gathered and killed the subsequent generations will be prevented. If this work is not done now, you will have to wait till eggs are found in large numbers on young pods and flowers. These will have to be rubbed off. Caterpillars are killed to save the crop from severe damage. Another operation may be necessary after 10 or 15 days-when fresh eggs may be found. Cost 12 annas per acre. See circular on *avare* pod borer, copy of which can be had free.

affection can be undertaken with certainty. The question of treatment of the affected animals was taken up by the Civil Veterinary Department as early as 1921 and thousands of cattle have either been cured or relieved, using varying doses of antimony tartrate.

However much we may be successful in effecting a cure, it is prevention of the affection that is much more important to the Stock owner from an economic point of view, to save deterioration and loss.

It will therfore be evident from a knowledge of the etiology of the disease that the watering places in and around the village should be kept free of the intermediary hosts—the snails. Copper Sulphate in small quantities is found to kill them, but it is not possible to adopt this method to treat all the pools and tanks in the State. It will therefore be necessary that these tanks are cleaned up periodically of all herbage and drained properly to prevent snails from breeding.

VEGETABLE FISH POISONS AS INSECTICIDES.

Most of the insects that attack our cultivated crops and fruit trees are usually kept down by spraying or dusting the infested plants with arsenical poisons or spraying with soaps made of fish oil and resin. These insecticides are costly and not easily available to the cultivators and moreover the use of arsenical poisons are attended with great risk unless proper precautions are taken to keep cattle away from the treated area.

With a view to finding out some other cheap non-poisonous, easily available material, investigations are being made in the Agricultural Department to find out the insecticidal properties of several of the plants used by fishermen to poison fish. These fish poisons are locally known by the common name *Meenu Mari Soppu or Gida* (plants or leaves having the property of killing fish). A large number of such plants are known in the State among which are the following *viz.*, *Purchale*, *Pulsare*, *Henukarvina gida*, (Mundulea suberosa), *Mukkada*, (Lasiosiphon eriocephalus), *Sokkina gida* (Balanites Roxburghii), *Kare* (Randia sp), *Mundugalli* (Euphorbia tirucalli), *Baluganike* (Diospyres montana.)

Out of the various plants tested for their insecticidal value, Mundulea suberosa which is one of the plants very easily available in large quantities in different parts of the State, has been found to have a good insecticidal value.

The bark of the plant well dried and powdered, when dusted on the potato plant infested with epilachna beetles has been found to give a mortality of 70 per cent among the insects.

Ninety per cent mortality of lice and fleas was noticed when the powder was well rubbed on the skin of cattle infested with these vermin.

A thin layer of the powder spread out on top of grains preserved in bins has been found to give complete protection against store pests, particularly Bruchids.

The powder has also been found to have the power of killing Culicine mosquito larvæ when dusted on the surface of water where

Holidays.	English Date	Days of the week	Date: Chandramana	Date: Sowramana	Tithies in Ghaliges and Vighaliges		Nakshatras in Ghaliges and Vighaliges	
	1	Thursday ...	10	16	Dasami	... 58 10	Makha	... 47 45
	2	Friday ...	11	17	Ekadasi	... 60 0	Pubba	... 52 32
	3	Saturday ...	11	18	Ekadasi	... 2 11	Uttara	... 57 26
	4	Sunday ...	12	19	Dwadasi	... 5 33	Hastha	... 60 0
	5	Monday ...	13	20	Trayodasi	... 8 1	Hastha	... 1 12
G	6	Tuesday ...	14	21	Chaturdasi	9 23	Chitta	... 4 6
	7	Wednesday	30	22	●Amavasya	... 9 33	Swathi	... 5 51
							KARTIKA	
G	8	Thursday ...	1	23	Padya	... 8 27	Vishaka	... 6 25
	9	Friday ...	2	24	Bidige	... 6 5	Anuradha	... 5 41
	10	Saturday ...	3-4	25	Tadige Chouti	... 2 30 ... 55 44	Jeshta Moola	... 3 52 ... 1 2
	11	Sunday ...	5	26	Panchami	... 52 53	Poorvashada	... 56 31
	12	Monday ...	6	27	Shashti	... 46 50	Uttarashada	... 53 13
	13	Tuesday ...	7	28	Saptami	... 40 27	Sravana	... 48 36
	14	Wednesday	8	29	Ashtami	... 34 1	Dhanishta	... 1 43
	15	Thursday ...	9	30	Navami	... 28 49	Satabisha	... 39 44
					Vrishika.			
	16	Friday ...	10	1	Dasami	... 22 5	Poorvabhadra	... 31 43
G	17	Saturday ...	11	2	Ekadasi	... 17 1	Uttarabhadra	... 32 26
	18	Sunday ...	12	3	Dwadasi	... 12 52	Revati	... 30 26
	19	Monday ...	13	4	Trayodasi	... 9 48	Asvini	... 29 22
	20	Tuesday ...	14	5	Chaturdasi	... 8 56	Bharani	... 29 30
M	21	Wednesday...	15	6	○Pournami	... 8 20	Krithika	... 30 57
							KARTIKA	
M	22	Thursday ...	1	7	Padya	... 8 58	Rohini	... 33 23
	23	Friday ...	2	8	Bidige	... 30 48	Mrigasira	... 38 0
	24	Saturday ...	3	9	Tadige	... 12 41	Aridra	... 41 34
	25	Sunday ...	4	10	Chouti	... 16 27	Punarvasu	... 36 43
	26	Monday ...	5	11	Panchami	... 20 50	Pushya	... 52 40
	27	Tuesday ...	6	12	Shashti	... 25 35	Aslesha	... 58 42
	28	Wednesday	7	13	Saptami	... 30 26	Makha	... 60 0
	29	Thursday ...	8	14	Ashtami	... 35 6	Makha	... 4 38
	30	Friday ...	9	15	Navami	... 39 17	Pubba	... 10 13

Yogas	Feasts, Festivals, Government Holidays and Rainfall according to Nakshatras	Dates of Cattle Fairs, Cattle Shows, Agricultural Exhibitions and other useful notes
Sukla ...		Sun rise 6-16
Brahma ...	Sarwathra Ekadasi.	
Mahendra ...	Swathi rain 4th pada.	
Vaidhriti ...	Pradosha.	
Vishkambha ...	Masa Sivarathri. Vishaka rain 1st pada.	
Preeti ...	Naraka Chaturdasi.	
Ayushman, Sowbhagya		
SUDDHA.		
Shobana ...	Bali Padyami. Vishaka rain 2nd pada.	
Atiganda ...		
Sukarma ...		
Dhriti ...		
Shoola ...	Vishaka rain 3rd pada.	
Ganda ...		
Vriddhi ...		
Dhruva ...	Peyalwar Tirunakshtram.	
Harsha ...	Vishaka rain 4th pada. Ashtatirthotsava at Melkote.	
Vajra ...	Sarwathra Ekadasi.	P. Sa.
Siddhi ...	Uttana Dwadasi.	
Vyatipata ...	Karthika Monday. Anuradha rain 1st pada.	
Variyan ...	Siva Deepa.	
Parigha ...	Vishnu Deepa, Vyasapournima. Shab-be-barat.	
BAHULA.		
Siva ...	Anuradha rain 2nd pada. Shab-be-barat.	
Siddha ...	Chaturmasa Dwitiya.	
Sadhya ...		
Shuba ...	Sankashta Chouti.	
Sukla ...	Anuradha rain 3rd pada. Karthika Monday.	
Brahma ...		
Mahendra ...		
Vaidhriti ...	Anuradha rain 4th pada.	
Vishkamba ...		

NOVEMBER 1934.

MOTNHLY NOTES.

A few days before harvesting ragi, go over the field and select and harvest separately all earheads which are large in size and have many spikes, say, more than six in number. Dry and thresh them separately and preserve carefully for seed. This seed will give you plants with large ear-heads with many spikes and therefore, a much bigger yield than unselected seed.

On wet lands reserved and being prepared for sugar-cane, green manure crops can be sown (*vide* notes under May). The H. M. 544 and other new varieties of sugar-cane should be planted about the time and applications for seed setts should be made early.

On tobacco fields, the crop planted in late September or early October will need topping and removal of suckers.

Dharwar-American cotton (*Doddahatti*) sown in May-June will be ready for a first picking; and in picking, care should be exercised, as mentioned in the notes under March. The best plants, *i.e.*, those bearing proflusely should be marked down too, and their cotton should be picked and stored separately. This should later be ginned at home and the seed preserved for sowing next season.

Jola raised for fodder and green grass in the jungles will be in condition for making ensilage, and every cattle owner should arrange for this method of storage.

Rubbing off eggs and caterpillars of the avare pod borer may have to be done this month also. See note for previous month.

As soon as the rains cease, spraying against green bug on coffee should be commenced on all infected estates and continued until the picking season. They will be observed only on a few trees to begin with, and if these are sprayed, the severity of infestation will be considerably reduced. The infestation will start with an ant's nest in the ground or on the tree as a centre. Spraying should be continued after the rains until the monsoon sets in.

these insects are found to breed A water extract of the plant was made by soaking for 12 hours one pound of the plant, cut up into pieces in a small quantity of water. The material was well macerated and the extract strained and made up to 20 gallons with water. A little soap was also added just before use. This material when sprayed against mango hopper nymphs (Idiocerus sp) on mango blossoms and leaves produced a mortality of 100 per cent.

Different parts of the plant appear to have varying toxic properties and plants obtained from different localities and different seasons vary in their toxicity.

The study of the various problems connected with the utilization of the plant for insecticidal purposes is being continued.

In addition to the various fish poisons, the common Honge (Pongamia glabra) is also found to have toxic action against insects. As a result of investigations, the oil from the seeds of Pongamia glabra, when made into soap with resin, has been found to have as good an insecticidal value against certain classes of insects as the fish-oil-resin soap. Extensive trials on a field scale are being made with this locally made soap from oil of Pongamia glabra.

IMPROVEMENT OF AMRIT MAHAL CATTLE BY PROPER FEEDING.

The Amrit Mahal cattle have a wide reputation for draught purposes but are looked upon as being very poor from a milk yielding stand point and are also known to be slow in attaining maturity. The method of rearing them by constantly moving them from pasture to pasture and making them subsist throughout their period of existence on what they could pick on such pastures, and the undue importance attached to their draught qualities to the total neglect of attempts at domesticating the cows with a view to ascertaining their milk yielding capacity are mainly responsible for the opinion formed of these cattle. Under the system of constant migration, these cattle are afforded a variety of food and change of ground so essential to health, the sick and weak either become a prey to wild animals or die and a process of natural selection takes place. The surplus stock of males having been made available year after year to the public, they attained their reputation as excellent draft animals. There was no enterprise in the direction of selecting cows for high milk yield.

In spite of the severe handling which adult cows that were in a semi-wild state until they had dropped their calves had to undergo during the first two weeks of their period of lactation, before they could be safely approached for milking at the Cattle Breeding Station, Ajjampur, and the adverse effect such methods of restraint would create on the yield, it has been possible, within a period of two years during which milk recording of 200 such domesticated cows was taken up, to trace seven cows that have yielded over two thousand pounds of milk per lactation, the highest yield of one cow being 2,714 pounds for a lactation period of 327 days. The lactation period of two of these cows has

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	1	Saturday ...	10	16	Dasami ... 42 44	Uttara ... 15 1
	2	Sunday ...	11	17	Ekadasi ... 45 15	Hastha ... 19 2
	3	Monday ...	12	18	Dwadasi ... 46 38	Chitta ... 22 3
	4	Tuesday ...	13	19	Trayodasi ... 46 48	Swathi ... 24 3
	5	Wednesday	14	20	Chaturdasi ... 45 40	Vishaka ... 25 2
	6	Thursday ...	30	21	● Amavasya ... 43 13	Anuradha ... 25
						MARGASIRA
	7	Friday ...	1	22	Padya ... 39 42	Jeshta ... 23 2
	8	Saturday ...	2	23	Bidige ... 35 8	Moola ... 20 4
	9	Sunday ...	3	24	Tadige ... 29 45	Poorvashadha ... 17 1
	10	Monday ...	4	25	Chouti ... 23 43	Uttarashadha ... 13 1
	11	Tuesday ...	5	26	Panchami ... 17 31	Sravana ... 8 4
	12	Wednesday	6	27	Shashti ... 11 12	Dhanishta ... 4
	13	Thursday ...	7–8	28	Saptami ... 5 5 Ashtami ... 54 7	Satabhisha ... 55 2 Poorvabhadra ... 55 3
	14	Friday ...	9	29	Navami ... 54 13	Uttarabhadra ... 52 1
	15	Saturday ...	10	30	Dasami ... 50 25	Revati ... 49 5
					Dhanassu.	
	16	Sunday ...	11	1	Ekadasi ... 47 18	Asvini ... 48 2
	17	Monday ...	12	2	Dwadasi ... 45 37	Bharani ... 48 2
	18	Tuesday ...	13	3	Trayodasi ... 45 11	Krithika ... 49 2
	19	Wednesday	14	4	Chaturdasi ... 46 0	Rohini ... 51 4
	20	Thursday ...	15	5	○ Pournami ... 47 58	Mrigasira ... 55
						MARGASIRA
	21	Friday ...	1	6	Padya ... 51 4	Aridra ... 59 3
	22	Saturday ...	2	7	Bidige ... 54 54	Punarvasu ... 60
	23	Sunday ...	3	8	Tadige ... 59 26	Punarvasu ... 4 4
	24	Monday ...	4	9	Chouti ... 60 0	Pushya ... 10 3
	25	Tuesday ...	4	10	Chouti ... 3 54	Aslesha ... 16
	26	Wednesday	5	11	Panchami ... 9 13	Makha ... 22 2
G.	27	Thursday ...	6	12	Shashti ... 13 53	Pubba ... 28 1
	28	Friday ...	7	13	Saptami ... 18 1	Uttara ... 33 2
	29	Saturday ...	8	14	Ashtami ... 21 26	Hastha ... 34 4
	30	Sunday ...	9	15	Navami ... 23 51	Chitta ... 41 1
	31	Monday ...	10	16	Dasami ... 25 28	Swathi ... 43 4

Yogas	Feasts, Festivals, Government Holidays and Rainfall according to Nakshatras	Dates of Cattle Fairs, Cattle Shows, Agricultural Exhibitions and other useful notes
		Sunrise 6-28
Preeti ...		
Ayushman ...	Jeshta rain 1st pada. Sarvathra Ekadasi.	
Sowbhagyam ...	Pradosha. Karthika Monday.	
Sobhana ..	Masa Sivarathri.	
Atiganda ..	Jeshta rain 2nd pada.	
Sukarma ...	Sarvatra Amavasya.	
SUDDHA.		
Dhriti, Soola ...		
Ganda ..		
Vriddhi ..	Jeshta rain 3rd pada.	
Dhruva ..		
Vyaghata ...		
Harsha ..	Jeshta rain 4th pada. Durbar Day.	
Vajra ...		
Siddha, Vyatipata ...		
Variyan ...	Moola rain 1st pada.	
Parigha ...	Mukkoti Dwadashi.	
Siva ...	Pradosa.	
Siddha ...		
Sadhya ...	Moola rain 2nd pada.	
Subha ...	Andhakasura Samhara.	
BAHULA.		
Sukla ...	Aridradarshanotsava.	
Brahma ...		
Mahendra ...	Moola rain 3rd pada.	
Vaidhriti ...	Christmas Holidays beginning.	
Vishkamba ...	Moola rain 4th pada.	
Preeti ...		
Ayushman ..		
Sowbhagyam ...	Poorvashada rain 1st pada.	
Shobana ...		
Atiganda ...		
Sukarma	Christmas leave from 24th to 31st.	

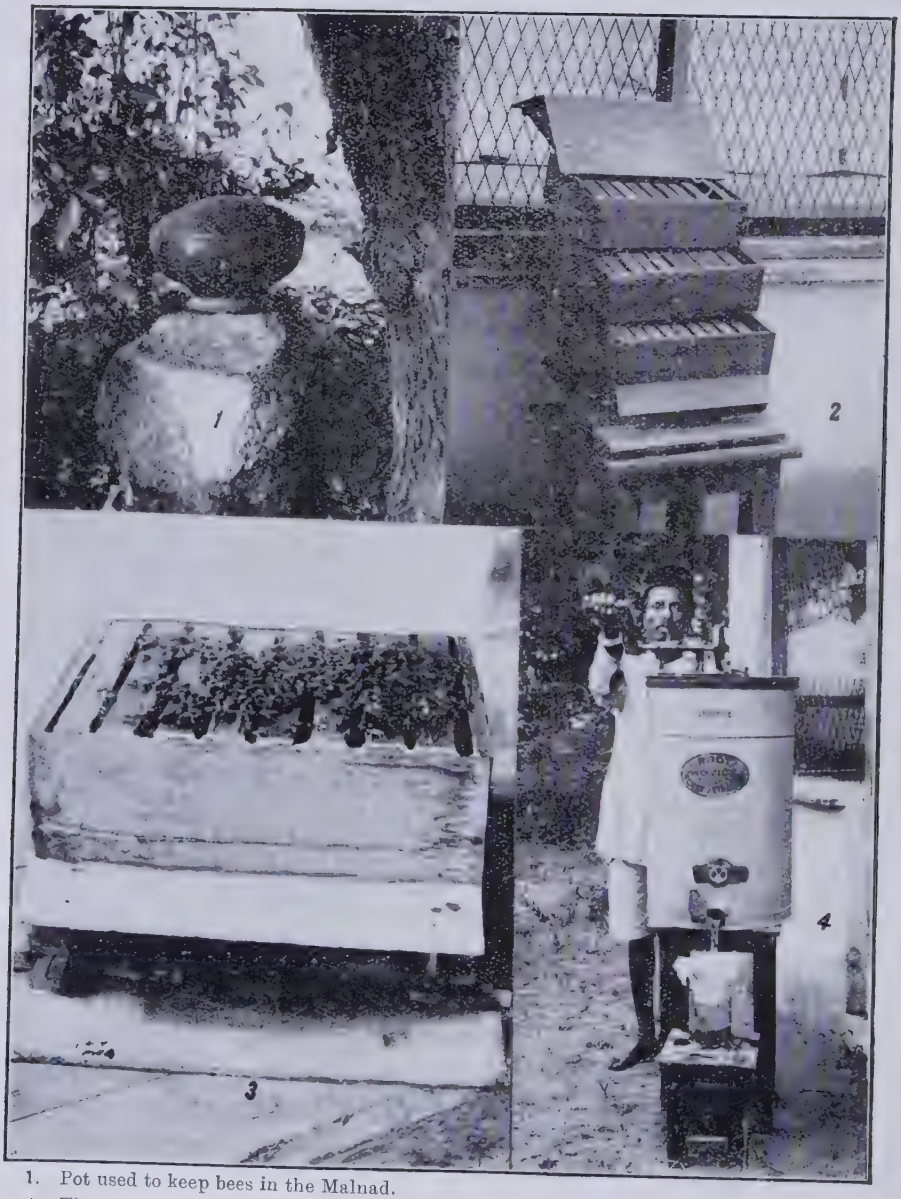
DECEMBER 1934

MONTHLY NOTES.

Soon after the dry crop of ragi or jola is harvested, the field should be ploughed up immediately. In this way, the moisture in the lower layers of the soil will be protected from the drying action of the sun and wind. The soil will be in a fit condition to receive and soak up the early rains of April and May, and thereby to enable us to start *mungar* ploughing early, or sow an early *mungar* crop like those specified in the notes under May (*q. v.*). The soil will weather well, which as many raiyats know, is equivalent to applying manure, the roots of weeds will be killed, and the pupæ of insects destroyed.

This ploughing is a very important operation for dry lands, for in a year of poor rainfall, it will help to tide the crop over the drought. It should therefore be attempted notwithstanding difficulties, such as the presence of the *akkadi* or subordinate crop, the hardness of the soil, etc. Immediately after harvest, the soil will be moist enough to plough or disc, and, at that time, it will be also possible to dodge the rows of the mixed crop in ploughing.

From this month onwards grains, pulses, etc., will be put in store. See all are thoroughly sun-dried before storage. Store preferably in bins with narrow mouths. When the grains and pulses are well settled down treat as follows: In the case of pulses, put on top a layer of sand 1 inch thick, weevils emerging from the pulses will come through the sand but will fail to return and so fail to reproduce. In the case of paddy, use a mixture of chunam powder and sand half and half. In both cases, there should be an opening at the side down below for withdrawal from time to time. When the grains and pulses are so withdrawn, the top layer of sand or sand and chunam is likely to be disturbed. See that it is set right each time.



1. Pot used to keep bees in the Malnad.
2. The several sections of the improved hive.
3. The upper surface of the brood-chamber of the improved hive showing bees at work.
4. Extraction of honey by means of the extractor.

extended over 600 days. These findings clearly indicate that by a system of selection and by milking the cows and recording their yield, the quantity of milk could be greatly increased in a few generations and that the Amrit Mahal breed does possess animals of high persistency associated with high milk yield.

Breeding is an art and so is feeding. Neglect is fatal so far as build is concerned. An impoverished animal in the early stages can never recover either for breeding or for milk. Amrit Mahal heifers in their undomesticated state have never been known to take the bull before they were at least four years old. The development of a heifer may quite readily be divided into four distinct periods: (1) the milk feeding period from birth up to about 8 months (2) from then until she is bred (3) the pregnancy period and (4) the lactation period.

Six Amrit Mahal heifer calves were fed on concentrates from the time they were six months old. All of these came into heat before they reached the age of three years and one of them dropped its first calf on completion of three years.

A lot of a dozen bull calves were put under a similar experiment with a view to compare their development and growth with that of calves that subsisted entirely on pasture. While the weight of one or two of the calves in the latter lot was more than that of the lot fed on concentrates, which might have been due to the former having had a better start in life owing to an abundant supply of milk in their dams, it is observed that the development and confirmation of the concentrate—fed lot is superior as indicated by measurements of their heights over hips, width of shoulders and of chest and of heart girth.

The conclusions of these observations point to the fact that the Amrit Mahal cattle have not had the proper environment to enable them to develop their inherent qualities and abilities, and that it is possible to produce distinct differences by feeding.

A Belgian proverb says "Hens lay through their beaks", and it might equally well be said that "Cows yield through their mouths". The cow is, in fact, a transforming machine and if we desire to obtain milk, we must introduce this milk into her udder through the food we give her. Buy Amrit Mahal cows and bulls and raise good milk yielding cows and good draught bullocks.

IMPROVED BEE-REARING.

The need for some subsidiary occupation for the raiyats in Mysore is, of late, being felt more and more increasingly; one of the occupations that can easily and profitably be taken up in villages is "Bee-rearing".

The raiyats in the Malnad tracts have long been engaged in rearing bees in pots kept round their habitations, in addition to gathering large quantities of honey from the combs of the wild bees in the forests. But their methods are far too primitive; anybody who has ever tasted the honey sold in our bazaars can testify to its extremely poor quality. There is little doubt that honey of an excellent quality could be obtained by the raiyats, if they take to the far cleaner and more efficient methods of rearing bees in improved bee hives.

The improved wooden hive box offers numerous advantages over the earthen pot in which the bees are so far being housed in the Malnad. Plenty of space for the brood and the surplus honey gathered are easily made available; the waste of honey wax is greatly reduced; the destruction of thousands of healthy bees is prevented; the extraction of honey made extremely easy and above all both the quantity and quality of the product enhanced to a marked extent and very attractive prices are also obtainable in the market for the vastly superior kind of extracted honey.

It is only one of the four honey-gathering species of bees known to us that lends itself to artificial rearing. The same species occurs in the malnad as well as the maidan areas, although slight differences in colour between the two are noticeable, the malnad bee appearing dark and the maidan one, brownish-yellow.

Bee-rearing can therefore be undertaken in maidan parts also wherever plenty of honey-yielding plants are available. Swarms are usually caught in decoy hives made of date palm stems, between January and April, and later transferred to the improved wooden boxes, kept in suitable places. Apart from weekly cleanings and intelligent handling of bees, very little care is needed in the maintenance of the colonies. Further the initial outlay is small, the seasonal returns from the hives amply justifying the outlay.

The department has been maintaining hives in the malnad as well as maidan parts in addition to inspecting and imparting advice to several private gentlemen who have already taken to the rearing on improved lines. Of late, Babbur Farm and the surrounding areas of Hiriyur have been found to be well suited, for the development of bee-keeping, as the several colonies established at the Farm have been found to be thriving very well, and the demand for the supply of improved hives is steadily increasing. Valuable data have also been collected by the Manager of the Babbur Farm who has taken very keen interest in bee-keeping from the start. The figures furnished by him, regarding the yield of honey per colony clearly point to the possibilities in the direction of the usefulness of bee-rearing, to raiyats in villages. One fairly strong colony, hived during the month of March 1932, yielded honey altogether six times at intervals of about two months, the total quantity obtained in the course of about 16 months being 20 lbs and 2 ozs; the extracted honey is being sold at Rs. 1-8-0 per lb. The same colony is continuing to flourish and will no doubt yield bigger harvests in course of time. Where 15-20 hives are kept by a person, an attendant on Rs. 10 or 12 per mensem, would have ample work in the management of the hives, and this expense, would amply be repaid in the long run.

Raiyats and others interested in Bee-keeping will do well to pay a visit to the Apiary in the Babbur Farm or to the one attached to the Department. The Entomologist would also be glad to furnish any information on the subject.

COCOANUT CULTIVATION ON THE BABBUR FARM.

Various crops and their strains are under trial on the Farm since its opening in 1916 to find their suitability to this region as also improvement of crops already in cultivation here. Cocoanut is one of them and this article is confined to the performance of some palms here with a view

Some promising cocoa-nut trees on the Labour Farm

to bring home to the raiyats interested in it and its improvement, the importance of getting pedigree seedlings for their plantings. Because, though the conditions of soil, water, cultural and fertilizers treatment under which the palms grow are apparently uniform for all, there are differences observed in their yielding capacity, color, size and shape of the nut, etc., due to their individual inherent character by the aid of which a classification may be made as high and low yielding palms.

A block of 8·85 acres of the kind of soil, highly gravelly red loam—typical of the channel area somewhat alkaline in nature, was put under plantains in 1922 as a preliminary crop for cocoanut. It is believed, and to a large extent rightly too, that the plantain crop reduces the attack of the black beetle on cocoanut, provides shade to the young seedlings, maintaining a sort of moist atmosphere in the garden and more than all that the realisations from the crop meet to a considerable extent the expenses of bringing up the palms to bearing age.

Three hundred and fifty-five seedlings of cocoanut were bought from various villages in the neighbourhood and sometimes from far off villages also. Their parentage was not known. This is a great handicap which raiyats are feeling at present, as there are no recognised seedsmen or nurserymen in this region who can sell guaranteed pedigree seedlings. The planting of seedlings of such unknown parentage among plantains was done in 1923 in rows 35' apart either way. Plantains occupied the land till May 1926; and the realisations therefrom amounted during the period to Rs. 3,348. The expenditure on the plantation from the beginning upto 1928-29 when the trees came into bearing was Rs. 4,848 so that the plantain crop brought down the net expenditure to Rs. 1,500.

Now that the plantation is in bearing for the last three years, the remarkable fact to which attention has to be drawn is the great difference in the number of nuts yielded by the several trees. Some of the trees are exceptionally large yielders while others are low yielders which bring down the production figure per acre. The following performance record of some of the trees brings out these differences clearly, the figures giving average yield over three years. Individual trees in certain years have yielded up to 300 nuts.

	No. of the palms	No. of nuts per tree High yielders	No. of the palms	No. of nuts per tree Low yielders
Group I ...	S. 156	124·4	157	23·0
	S. 349	112·8	324	16·0
	52	94·6	125	8·6
	326	85·0	325	4·0
	123	85·0	202	2·0
Group II	S. 255	100·4	269	24·0
	272	91·2	176	23·2
	8	89·6	219	15·2
	305	79·5	270	13·0
	25	77 2	210	4·0

	No. of the palms	No. of nuts per tree High yielders	No. of the palms	No. of nuts per tree Low yielders
	S. 98	114·32	44	18·0
	S. 117	107·2	47	14·6
Group III ...	S. 116	104·6	331	10·0
	S. 84	102·6	347	2·50
	S. 73	101·6	330	2·0
	140	86·8	256	11·0
	54	85·2	245	10·5
Group IV ...	55	85·0	170	8·0
	189	85·2	339	6·0
	142	83·2	79	4·6
	S. 128	139·2	260	12·0
	107	80·0	243	9·5
Group V ...	129	79·2	242	9·0
	230	78·0	355	2·0
	161	72·0	229	1·5
	211	94·8	58	14·0
	62	89·2	64	12·0
Group VI ...	268	89·2	60	5·5
	231	81·6	236	4·0
	191	76·0	63	2·0
	121	83·5	146	27·2
	14	74·8	280	26·0
Group VII ...	292	74·0	312	25·6
	163	72·8	133	16·0
	122	71·0	18	3·5

N.B.—Grouping of palms is in accordance with the treatment as regards fertilizers.

It will be seen what great scope and necessity exist for selecting the proper kinds of trees for propogation and stocking a plantation with. The Farm is carrying out work in this direction and seed nuts are selected from the highest yielding trees bearing in mind also the desirable characteristics of the trees and nurseries raised for planting out further areas in the Farm. The expectation of course is that a good number of such plants will turn out true to the high yielding character of the parent trees in a considerable measure.

DOWNY MILDEW OF THE GRAPEVINE.

Downy mildew, a disease of very recent introduction in Mysore is noted for the very severe losses, it can cause to vineyards in years when it assumes the nature of an epidemic. It has been particularly severe in France where it was introduced from America and it is therefore necessary that orchardists here should pay particular attention to this disease.

View of the underside of a grapevine leaf attacked by downy mildew.

Downy mildew is caused by a fungus. The disease makes its appearance during the rains of the North-east monsoon. Dry conditions are unfavourable for its development, but high humidity, low temperature and cloudy weather are the ideal conditions for its appearance and spread. The first symptom of the disease is the appearance of pale yellow, transparent 'oil-spots' of different sizes and shapes on the upper surface of the leaf. Soon after this, a white glistening growth appears immediately below these spots, on the under surface of the leaf. (See plate I) This growth resembles the "down" on the chicken, and hence the name "downy mildew" for the disease, as opposed to the other common mildew, "powdery mildew," which forms grayish white patches on both the surfaces of the leaf, the spots looking as if dusted with a "powder." The spots of downy mildew later change colour from yellow to brown, bringing about the death of the tissues affected. Other parts of the plant also are attacked, like the green shoots, leaf-stalks, tendrils, and even fruits. Affected shoots tend to become dwarfed or deformed, the leaves remaining small. In the later stages of attack large numbers of leaves drop down, and this tells severely on the condition of the vines. Affected fruits shrivel and become hardened.

The disease is easy to control. All old and fallen leaves and debris should be ploughed under or burnt, and the vines should be sprayed with Bordeaux mixture. The spraying should be done before the disease is due to appear, and just in advance of anticipated rainy periods, some time in September-October. Three sprayings may be necessary, the first to be done when the shoots are 6 to 8 inches long, the second just after blossoming, and the third before the fruit changes colour. The mixture is prepared in the proportion of 5 lbs. of copper sulphate and 5 lbs. of lime in 50 gallons of water. To this should be added an adhesive prepared out of 1 lb Casein and 1 lb. lime in 2 gallons of water from out of the bulk of 50 gallons. There need be no fear that eating sprayed fruit would be poisonous, as experiments elsewhere have shown that a man may eat safely, if he can, from 300-500 lbs. of sprayed grapes per day, with skin and all, for a number of days in succession without fear of ill-effects from the copper.

During the monsoon season of 1933, over 800 plants were sprayed. The monsoon was not very active and hence no resprayings were done. The plants remained healthy. The cost of chemicals and labour per plant per spraying will work out to only about three-fourths to one anna. The first spraying immediately after pruning will cost very much less than this. There is no doubt that spraying will pay in the shape of increased yield, and greater vigour of the plant.

Information for visitors to the Departmental Farms.

Name of Farm	Location and Postal address	Main lines of work in progress	Most suitable time to visit	Controlling officer from whom further information may be obtained
1. Hebbal Farm	Hebbal, 5 miles from Bangalore on the Bangalore-Chikballapur Road. P. O. Hebbal, Bangalore.	Experimental Work on the cultivation and breeding work in Hain Ragi, Groundnuts, Sugar-cane, Paddy and Potato, besides several minor crops. The Hebbal Dairy, the Agricultural Engineering workshop and the Agricultural School are also located on the Farm. The Serum Institute is situated close by.	October and November for the dry-land crops and November to January for the wet-land crops.	The Economic Botanist, Bangalore.
2. The Babbur Farm.	Babbur Village, about 3 miles from Hiriyur, which is a Taluk headquarter station in the Chitaldrug District, 100 miles on the main Bangalore-Bellary road, P. O. Hiriyur.	Experimental work on cotton and jola, sugarcane and cocoanuts.	January and February.	The Director of Agriculture, Bangalore.
3. The Marthur Farm.	About 9 miles from Sagar on the Sagar-Jog road, Shimoga District. P. O. Talaguppa, via Sagar.	Koleroga control and other experimental work on arecanut. Work also on the cultivation of paddy, sugar-cane, pepper, cardamom and ginger.	From Nov. to February.	The Assistant Director of Agriculture, Shimoga.
4. The Nagenahalli Paddy Breeding Station.	At Nagenahalli, about 5 miles from Mysore on the Mysore Bangalore road. P. O., Mysore.	Paddy breeding.	October and November.	The Economic Botanist.
5. The Hunsur Kar Ragi Station.	Hunsur town on the Mysore—Mercara road. P. O. Hunsur.	Experimental work on Kar-ragi varieties and crops suited to the Kar Ragi tract.	August.	Do
6. The Balehonnur Coffee Experimental Station.	About 5 miles from Balehonnur, Kadur District. P. O., Balehonnur.	Manurial, cultivation, and breeding work on coffee, as well as the study of coffee diseases and control methods. Other plantation crops like pepper and cardamom have also been taken up on a small scale.	December to January.	The Assistant Director of Agriculture, Chikmagalur.
7. The Ajjampur Cattle Breeding Station.	About a mile from Ajjampur, a railway station on the Mysore-Poona line (M. S. M. Ry.) P. O., Ajjampur	Breeding of Amrit Mahal cattle. A part of the sheep breeding work of the Department is also carried out here.	October to December.	The Live Stock Expert, Bangalore.
8. The Yellachihalli Sheep Farm.	Yellachihalli village, about 14 miles from Mysore, on the Mysore-Mercara road- P. O., Yelwal, Mysore District.	Sheep breeding.	August to October.	Do
9. Irwin Canal Farm.	Seven miles from Mandya Railway Station.	Experimental, demonstration and seed supply work connected with Sugar-cane, paddy and other crops connected with the Irwin canal Area.	October and November.	Agricultural Chemist, Bangalore.

THE LENDING LIBRARY.

Arrangements have been made recently to set apart a selection of books from the departmental library for the purpose of lending to persons interested in agriculture and allied subjects. A revised catalogue of these books giving information as to the conditions under which they may be borrowed can be obtained free of charge from the Officer in charge, Library Department of Agriculture, Bangalore.

HOW TO TAKE AND SEND SAMPLES OF SOILS AND MANURES FOR ANALYSIS.

Soils.—Select five or six different places, not near each other, in a field of about an acre or so in extent, scrape the surface clean of all vegetation and accumulation of decaying leaves, etc. At each place, dig a hole about 18 inches square with a sharp spade or other suitable implement such as a *mumtee*, to a depth of 18 inches. The walls of this hole should be smooth and perpendicular. Remove the soil to the depth of 8 inches from the sides of the hole in a slice about 4 inches thick, or the sample may extend to the depth indicated by a change of colour in case such change is between 8 and 12 inches.

Collect, break up all lumps with a wooden mallet, and mix all the samples from the five or six holes, remove all large stones, sticks, etc. Stones of the size of a pea and smaller and fine roots should not be removed. After the heap collected is well mixed, take about 10 lbs. of soil and put it into a clean cloth or canvas bag and tie up the mouth securely. Put the bag in a clean wooden box and forward. Each bag should be distinctly labelled, and a duplicate label put inside the bag.

The following information should also be supplied along with the samples:—

(*a*) The management and rotation of Crops in previous years.
(*b*) The character of the customary manuring, whether only cattle manure is used, or oil-cakes and such other manures also in addition.
(*c*) The average amounts of each of the more important crops yielded by the field.
(*d*) The character of the sub-oil, whether sandy or clayey, to a depth of about 3 feet at least.
(*e*) Level of ground water, character of natural vegetation and physical character of the soil.
(*f*) Local opinion with regard to fertility, etc.

Manures.—Take a small and equal quantity from near the centre of each bag or heap with a long handled scoop or ladle; mix well and send about 2 to 5 lbs.

In case of oil-cakes, information about the quantity locally available should also be furnished.

In case it is found difficult to get such samples from accumulation of cattle manure in a large pit heap, the sample can be easily collected when the manure is carted out into the fields and put there in small heaps. A small quantity from each heap can then be easily collected

when the manure is carted out into the fields and put there in small heaps. A small quantity from each heap can then be easily taken. Mix well all samples thus got and send about 20 lbs. in a suitable box.

All available information with regard to the source of manure, whether from milch cows or working bullocks, and the way in which the animals are fed, *e.g.*, fed only on straw or getting oil-cakes and bran in addition should also be furnished.

HOW TO SEND DISEASED SPECIMENS FOR EXAMINATION.

When crops appear to be attacked by some sort of disease and a careful search does not reveal any insect or insects attacking them, it is to be presumed that they are affected by parasites of vegetable nature. In all such cases, materials should be forwarded to the Mycologist, Department of Agriculture for identification of the organism causing the disease. The following instructions are given for sending such materials.

2. Entire plants, or if they are very big, parts of plants showing the early stage and the late stage, should be carefully selected and sent in a clean tin or card-board box in as fresh a condition as possible. The specimens may if necessary be lightly rolled in paper, but no packing material like dried leaves or sawdust should be get mixed up with the specimens. Care should be taken to see that the packet is posted by the earliest available post, so that there would be only the least delay in transit. All parcels should be sent to the Mycologist, Department of Agriculture, Bangalore, together with a letter giving full particulars as to the nature of the outbreak and its present condition. Arrangements will then be made to give instructions regarding the best method of treatment, and in serious cases, an officer of the Department will be sent to help the cultivators concerned.

CO-OPERATIVE EXPERIMENTS IN AGRICULTURE.

A feature of the work of the Mysore Agricultural Department for many years has been the organization and carrying out of co-operative testing of improvements recommended by the Department on the lands of cultivators. There are two reasons why these tests should be made on the cultivator's own land. Firstly, the cultivator conducts the test himself and therefore the most convincing proof of whether a suggested improvement is an improvement or not is provided; and secondly, the tests are conducted on the soil and under other conditions existing in the place where the improvements are later on to be adopted on a large scale. The cultivator finds out for himself with the aid of these simple tests what improvements are practicable on his land.

These co-operative experiments are being conducted since 1918 mainly by the members of the Mysore Agricultural and Experimental

Union. Members of this Union in co-operation with the Department of Agriculture, conduct regular tests of implements, seeds, manures and remedial measures for insect pests and plant diseases. The results of these tests are discussed at the annual meeting of the Union and published in the Journals of the Union printed in two languages, English and Kannada. The Journals contain besides, much useful information on all matters relating to agricultural improvement. The Vernacular Journal is being published as a monthly, the English edition being a quarterly publication. The Kannada edition of the Journal has recently been spicially recommended by Government to the Village Panchayets. It includes much information of special value to them.

Agriculturists of the State who wish to join the Union or who wish to have any information connected with it are requested to write to the Secretary, the Mysore Agricultural and Experimental Union, Seshadri Road, Bangalore.

RAHUKALA AND GULIKAKALA.

Days of week	Rahukala	Gulikakala
Sunday	4-30 to 6 P.M.	3 to 4-30 P.M.
Monday	7-30 to 9 A.M.	1-30 to 3 P.M.
Tuesday	3 to 4-30 P.M.	12 noon to 1-30 P.M.
Wednesday ...	12 noon to 1-30 P.M.	10-30 A.M. to 12 noon
Thursday	1-30 to 3 P.M.	9 to 10-30 A.M.
Friday	10-30 A.M. to 12 noon	7-30 to 9 A.M.
Saturday	9 to 10-30 A.M.	6 to 7-30 A.M.

PUBLICATIONS OF THE DEPARTMENT OF AGRICULTURE IN MYSORE, BANGALORE.

ANNUAL REPORTS.

Annual Report of the Agricultural Chemist	1899–00	Out of print.
Do do	1900–01	do
Do do	1901–02	do
Do do	1902–03	do
Do do	1903–04	do
Do do	1904–05	do
Do do	1905–06	do
Do do	1906–07	do
Do do	1907–08	do
Do do	1908–09	do
Do do	1909–10	do
Annual Report of the Agricultural Department	1910–11	do
Do do	1911–12	do
Do do	1912–13	do
Do do	1913–14	do
Do do	1914–15	Available
Do do	1915–16	do
Do do	1916–17	do
Do do	1917–18	do
Do do	1918–19	Out of print.
Do do	1919–20	do
Do do	1920–21	do
Do do	1921–22	do
Do do	1922–23	do
Do do	1923–24	do
Do do	1924–25	do
Do do	1925–26	do
Do do	1926–27	do
Do do	1927–28	Available
Do do	1928–29	do
Do do	1929–30 to 1930–31	Out of print.
Do do	1931–32	Available

THE MYSORE AGRICULTURAL CALENDARS.

English Calendars for the years 1915 to 1928	1919 available.	(Out of print).
Do for the year 1929 to 1931 available	...	free
Kannada Calendars for the years 1915 to 1928	1919 available.	out of print
Do for the year 1929 (available)	...	do
Do do 1930 do	...	do
Do do 1931 do	...	do

THE MYSORE HEBBAL AGRICULTURAL SCHOOL CALENDARS.

Calendars for the years 1917-18 to 1926-27 (Out of print).
1927-28 to 1928-29 do
1929-30 do

BULLETINS.

General Series.

		Rs.	a.	p.
1.	Green Manuring in Mysore (English and Kannada) Out of print.	0	8	0
2.	Experiments on Paddy Cultivation (English and Kannada) Out of print.	0	8	0
3.	Report on Agricultural Education. Out of print ...	0	8	0
4.	Report on an Agricultural Tour in Europe, America and Japan during 1912-13. Out of print.	0	8	0
5.	Short Report of the Mysore Agricultural Department (English and Kannada). Out of print.			
6.	Coffee: Its Cultivation and Manuring in South India (English and Kannada). Copies available.	0	2	0
7.	A Note on the Milk Supply of Bangalore, in English only. Out of print.	0	4	0
8.	Prospectus of the Chikkanahalli Agricultural School. Out of print.			
9.	Methods of Butter-making, local and improved. Kannada, available.	0	4	0
10.	The Cultivation of the Areca Palm in Mysore (English and Kannada).	0	8	0
11.	The Cultivation of Ragi in Mysore (English and Kannada) ...	1	0	0
12.	Agriculture in Mysore (English only). Out of print ...	1	0	0
13.	Improvement of the Coffee Industry in Mysore, (English only)	0	4	0
14.	Agricultural Research and demonstration in the Dutch East Indies. (English only,)	0	4	0
15.	Improvement of Coffee in the Dutch East Indies (Eng. only)	1	0	0
16.	Report on the Coffee Berry Borrer, Stephanderes Hampei, Ferr in Java. (English only).	1	0	0
17.	Notes on Sugar-cane cultivation in Java. (English only)	1	0	0
18.	Development of the Sugar Industry in Mysore. (English only)	0	8	0

Chemical Series.

1.	Some Manurial Earths of Mysore (*boodi mannu*), English and Kannada. Out of print.	0	2	0

Mycological Series.

1.	Ring Disease of Potatoes. Out of print	0	8	0
2.	Diseases of the Areca Palm. I. Koleroga, English and Kannada. Out of print.	2	0	0
3.	Spike Disease of Sandal (English)	1	0	0
4.	Proceedings of the Conference on the Spike Disease of Sandal.	0	8	0
5.	Black Rot or Koleroga of Coffee in Mysore (English) ...	0	8	0

Entomological Series.

		Rs.	a.	p.
1.	The Rice Grasshopper in English and Kannada. Out of print.	1	0	0
2.	The Jola or Deccan Grasshopper in English and Kannada. Out of print.	1	0	0
3.	Kamblihulas attacking Crops in Mysore. Out of print ...	0	8	0
4.	Some Scale Insect Pests of Coffee (English)	1	0	0
5.	Ground Beetles attacking Crops in Mysore	0	4	0
6.	Pulse Beetles	0	4	0
7.	The Function of the Prothoracic Plate in Mylabrid (Bruchid) Larvæ (A study in adaptation) in English only.	0	8	0
8.	The Large Citrus Borer of South India (English) ...	0	8	0
9.	The Potato Epilachna Beetle Epilachna [Viginti-Octo-Punctata (Fabr)].	0	4	0
10.	Bee-Keeping A subsidiary occupation for the Raiyats ...	0	8	0
11.	The Coffee Stem Borer. (English)	0	8	0

The Mysore Coffee Experiment Station Series.

1.	The Mysore Coffee Experiment Station. What it is doing for the improvement of Mysore Coffee. (English and Kannada).			
2.	The Coffee Berry Borer—(Stephanoderes hampei). A Preliminary Account (English and Kannada).			
3.	Report of work on the Coffee Experiment Station, Balehonnnr for the years 1925-30. (English).			
4.	Seasonal Periodicity of Coffee Leaf Disease—(Hemilea vastatrix, B. and Br.) (English).			
5.	Annual Report of the Coffee Scientific Officer, 1930-31 ...	0	8	0
6.	Seasonal Periodicity of Coffee Leaf Disease, Hemlea vastatrix B. and Br. 2nd Report (English) ...	0	8	0
7.	Annual Report of the Coffee Scientific Officer 1931-32 ...	0	8	0
8.	Report of work on the Coffee Experiment Station, Balehonnur, for the years 1930 & 31	0	8	0
9.	Spraying of Coffee in South India	1	0	0
10.	Annual Report of the Coffee Scientific Officer 1932-33 ...	0	4	0
11.	Nematode Worms in relation to the Cockchafer and Mealy Bug Problem in Coorg	0	8	0

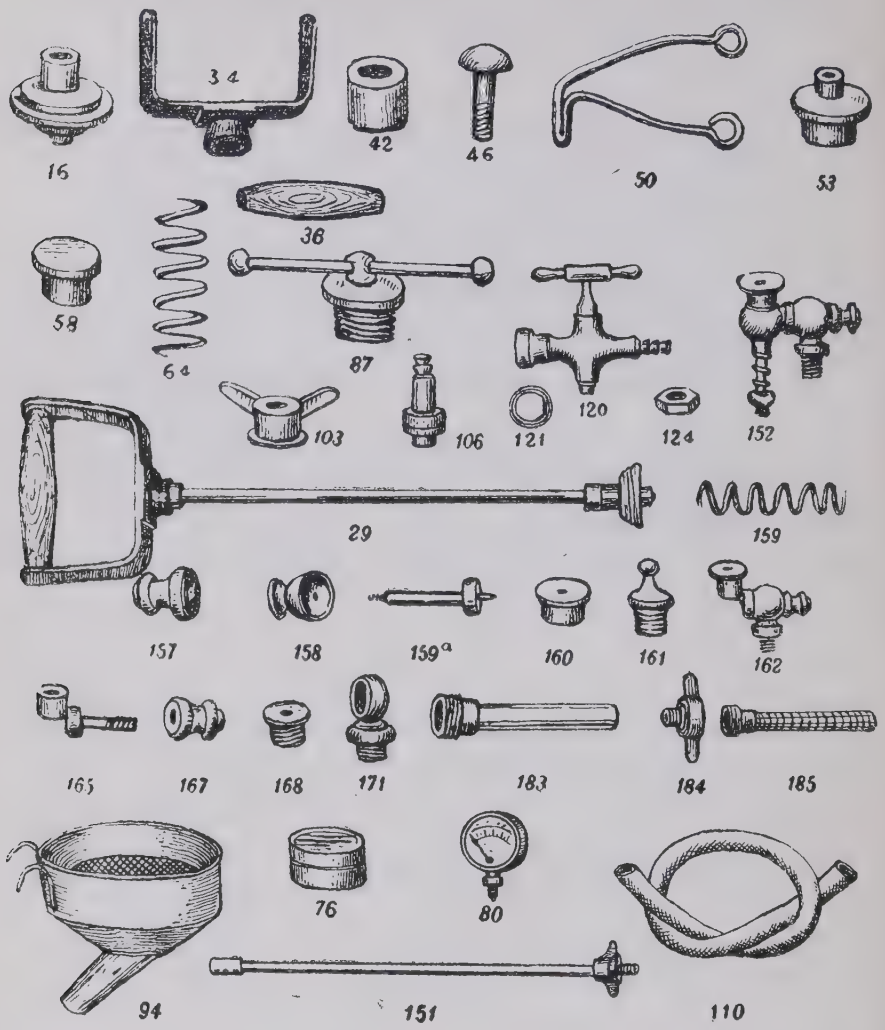
CIRCULARS.

1. Koleroga of Supari, in Kannada and English. Out of print.
2. About Grasshopper, in English and Kannada. Out of print.
3. Koleroga of Supari, English and Kannada. Out of print.
4. Directions for taking Samples of Soils and Manures, in English and Kannada. Out of print.
5. Broach and Cambodia Cotton, in Kannada only. Out of print.
6. Agricultural Implements and Machines, in English. Out of print.

7. Green Bug on Coffee, in Kannada only. Out of print.
8. Distribution of Broach Cotton Seeds to the Cultivators during the year 1913 (in Kannada only). Out of print.
9. Distribution of Cambodia Cotton Seeds, in Kannada only. Out of print.
10. Smut on Jola, in English and Kannada. Out of print.
11. Use of Honge Oilcake as Manure to Sugar-cane. Kannada only. Out of print.
12. Price list of Implements sold in the Implement Depot of the Department, in English only. Out of print.
13. Selection of Seeds by Salt Water Method, in Kannada only. Out of print.
14. Koleroga of the Areca Palm, in English only. Out of print.
15. Kamblihulas attacking Crops in Mysore, in Kannada only. Out of print.
16. Kondalihula of Castor, in Kannada only. Out of print.
17. Kokkre Roga of Paddy, in Kannada only. Out of print.
18. Handbook of Exhibits, Mysore Dasara Exhibition, 1916, in English only. Out of print.
19. Handbook of Exhibits, Mysore Dasara Exhibition, 1917, in English only. Out of print.
20. How to combat Coffee Borer. Out of print.
21. Kamblihula, in Kannada only. Out of print.
22. The Drying of Arecanuts, in English only. Out of print.
23. Kamblihula with Black head, in Kannada only.
24. Insect Pest of Ear-head of *Gidda* Ragi, in Kannada only. Out of print.
25. Methods of Cultivating Summer Season Crop, in Kannada only. Out of print.
26. Methods of Cultivating Ragi, in Kannada only. Out of print.
27. Methods of Cultivating *Bili* Jola and *Navane*, in Kannada only. Out of print.
28. Methods of Cultivating short duration Paddies, in Kannada only. Out of print.
29. Borer *hula*, in Kannada only. Out of print.
30. List of Books available for lending from the Library of the Department of Agriculture in Mysore. (English only.)
31. Cattle Breeding, in English and Kannada. Out of print.
32. Pony Breeding, in English and Kannada. Out of print.
33. Transplantation of Paddy, in Kannada only. Out of print.
34. Kamblihula Pest Act, in Kannada only. Out of print.
35. Instructions for conducting Ragi (Eleusine coracana) Varietal Tests. (English and Kannada).
36. Instructions for conducting Groundnut (Arachis hypogæa) Trials. English and Kannada, (Kannada only available).
37. Instructions for conducting Castor (Ricinus communis) Trials (Kannada only available).
38. Instructions for conducting Sugar-cane Varietal Tests (Kannada only available).

39. Manufacture of Ensilage (English and Kannada).
40. Prickly-pear as a Fodder for Cattle (English and Kannada).
41. Lime Tree Borer (Kannada).
42. Sugar-cane Borer do
43. Jola Grasshopper do
44. Spraying against Coffee Black Rot or Koleroga. (English and Kannada). Out of print.
45. Spraying against Diseases of Coffee (English and Kannada).
46. The Lantana Bug (English and Kannada).
47. A mistaken impression about the Prickly-pear destroying insects in the Mysore State (English and Kannada).
48. Method to be adopted for the cultivation of Ragi in the Irwin Canal Area (Kannada only).
49. The Potato Beetle (A Serious Pest of the Potato Crop Kannada and English).
50. Method to be adopted for the cultivation of Ragi in the Irwin Canal Area, (Kannada only).
51. Method to be adopted for the cultivation of Ground nut in the Irwin Canal Area, (Kannada only).
52. Agricultural Implements and their description to be used in the Irwin Canal Area (Kannada only).

PRICE LIST OF SPARE PARTS FOR HOLDER SPRAYERS.



No.		Rs.	a.	p.	No.		Rs.	a.	p.
16	..	0	11	0	151A	..	2	4	0
29	..	1	11	0	161	..	0	7	0
42	..	0	6	6	165	..	0	12	0
46	..	0	1	0	167	..	0	4	0
50	..	0	2	0	168	..	0	4	0
53	..	1	6	0	171	..	0	12	0
58	..	0	6	0	183	..	0	14	0
64	..	0	3	0	184	..	0	13	0
80	..	1	14	0	185	..	0	6	0
87	..	1	4	0	Meter plugs	..	0	2	0
94	..	1	11	0	Lid washers	..	0	1	0
103	..	0	7	0	Washer sets	..	0	4	0
106	..	0	7	0	Handles for 2 gallon sprayers		0	6	0
120	..	1	14	0	Hose per foot	..	0	6	0
121	..	0	1	0	All washers for spare parts		0	0	3
124	..	0	2	0	Nozzle caps	..	0	8	0
151	..	1	12	0	New nozzles	..	2	7	0

In supercession of all the previous circulars, the following implements will be sold by the Mysore Agricultural Department, Bangalore, at rates quoted below delivery at the Central Implement Depot, Bangalore.

No.	Names of Implements	Amount. Rs.	a.	p.
1.	Kolar Mission No. 8 plough	19	12	0
2.	Do No. 9 do	21	12	0
3.	Do pattern plough	15	12	0
4.	Mysore plough	25	14	0
5.	Mysore pattern plough	15	12	0
6.	Meston plough	6	3	0
7.	Eureka plough	13	8	0
8.	Gardener plough	11	4	0
9.	Malnad plough	16	3	0
10.	Kirloskar No. 9 plough	33	7	0
11.	Do 11 plough	26	5	0
12.	Do 15 plough	28	5	0
13.	Kolar Mission Six Shovel cultivator	14	14	0
14.	C. I. W. cultivator	13	0	0
15.	Madhurai Sugar-cane Mill 1932 Model	195	0	0
16.	Do do do without legs ...	185	0	0
17.	Round pans	32	1	0
	PLOUGH PARTS.			
18.	Kolar Mission F. 4 steel share (Imported)	2	13	0
19.	Do F. 6 steel share	3	4	0
20.	Do chilled shares	1	4	0
21.	Do annealed shares	1	10	0
22.	Eureka share	0	14	0
23.	Meston share	0	9	0
24.	Mysore plough share	2	15	0
25.	Mysore pattern plough share	1	6	0
26.	K. M. pattern plough steel share	3	2	0
27.	K. M. pattern plough land side	0	14	0
28.	K. M. pattern plough mould board	1	11	0
29.	Mysore pattern plough mould board	2	4	0
30.	Mysore pattern plough landside	1	0	0
31.	Mysore plough bar point	1	5	0
32.	Mysore pattern plough landside	1	2	0
33.	Verity share	1	4	0
34.	Kir. No. 9 share	1	7	0

W D 1061—GPB—1,500—9-3-34.